Statement of Basis

Permit to Construct No. P-2015.0022
Project ID 62289

Gayle Manufacturing Co, Inc.
Caldwell, Idaho

Facility ID 027-00148

Final

November 22, 2019
Shawnee Chen, PE
Senior Air Quality Engineer

The purpose of this Statement of Basis is to satisfy the requirements of IDAPA 58.01.01.et seq, Rules for the Control of Air Pollution in Idaho, for issuing air permits.

ACRONYMS, UNITS, AND CHEMICAL NOMENCLATURE

AAC	acceptable ambient concentrations
AACC	acceptable ambient concentrations for carcinogens
acfm	actual cubic feet per minute
ASTM	American Society for Testing and Materials
BRC	below regulatory concern
Btu	British thermal units
CAA	Clean Air Act
cfm	cubic feet per minute
CFR	Code of Federal Regulations
CO	carbon monoxide
CO_2	carbon dioxide
DEQ	Department of Environmental Quality
dscf	dry standard cubic feet
EL	screening emission levels
EPA	U.S. Environmental Protection Agency
GMC	Gayle Manufacturing Company
gph	gallons per hour
gpm	gallons per minute
gr	grains (1 lb = 7,000 grains)
HAP	hazardous air pollutants
hp	horsepower
hr/yr	hours per consecutive 12 calendar month period
ICE	internal combustion engines
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
iwg	inches of water gauge
km	kilometers
lb/hr	pounds per hour
lb/qtr	pound per quarter
m	meters
MACT	Maximum Achievable Control Technology
MAU	make-up air unit
MMBtu	million British thermal units
MMscf	million standard cubic feet
NAAQS	National Ambient Air Quality Standard
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO_2	nitrogen dioxide
NO_X	nitrogen oxides
NSPS	New Source Performance Standards
O&M	operation and maintenance
O_2	oxygen
PAH	polyaromatic hydrocarbons
PC	permit condition
PM	particulate matter
$PM_{2.5}$	particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
POM	polycyclic organic matter
ppm	parts per million
ppmw	parts per million by weight
PSD	Prevention of Significant Deterioration
psig	pounds per square inch gauge

PTC	permit to construct
PTC/T2	permit to construct and Tier II operating permit
PTE	potential to emit
RICE	reciprocating internal combustion engines
Rules	*Rules for the Control of Air Pollution in Idaho*
scf	standard cubic feet
SCL	significant contribution limits
SI	spark ignition
SIP	State Implementation Plan
SM	synthetic minor
SM80	synthetic minor facility with emissions greater than or equal to 80% of a major source threshold
SO_2	sulfur dioxide
SO_x	sulfur oxides
T/day	tons per calendar day
T/hr	tons per hour
T/yr	tons per consecutive 12 calendar month period
T2	Tier II operating permit
TAP	toxic air pollutants
ULSD	ultra-low sulfur diesel
U.S.C.	United States Code
VOC	volatile organic compounds
yd^3	cubic yards
$\mu g/m^3$	micrograms per cubic meter

FACILITY INFORMATION

Description

Gayle Manufacturing Company (GMC) maintains and operates a structural steel fabrication plant located at the southwest corner of Weitz Road and Highway 19 in Caldwell, Idaho. The facility is referred to as GMC-A.

The facility consists of the following 8 separate air emission sources:

- Natural gas space heaters to provide heat to the facility.
- Abrasive blasting inside an enclosed vessel with a dust collector for control of particulate matter emissions. Throughput is anticipated to be up to 96,000 pounds of steel per year.
- Welding inside a building with a Robovent filtration system for control of particulate matter emissions. Welding has an anticipated throughput of 2,303,880 pounds annually.
- Plasmarc cutters fitted with dust collectors for control of particulate matter emissions.
- Natural gas process heaters and cutting torches.
- Ultra-Low Sulfur Diesel (ULSD) emergency fire-pump engine.
- Two natural gas-fired emergency engines.
- Painting of fabricated steel parts outdoors during the months of April through August between the hours of 6 am and 6 pm.

Permitting History

The following information was derived from a review of the permit files available to DEQ. Permit status is noted as active and in effect (A) or superseded (S).

November 9, 2015	P-2015.0022, Initial PTC, Permit status (S)
March 16, 2018	P-2015.0022, project 61965, PTC revision, Permit status (A, but will become S upon issuance of this permit)

Application Scope

This PTC is for a minor modification at an existing minor facility.

The applicant has proposed to:

- Add a new separate office building with two natural gas-fired roof top heaters for heating and cooling the office building and one natural gas-fired emergency generator for supplying backup electric power to the office building.
- Add a natural gas-fired make-up air unit (MAU) for heating and cooling in Bay 5.
- Remove uninstalled space heating units (56 units) from the existing permit.

Application Chronology

August 16, 2019	DEQ received an application and an application fee.
August 27 – September 11, 2019	DEQ provided an opportunity to request a public comment period on the application and proposed permitting action.
September 6, 2019	DEQ determined that the application was complete.
October 21, 2019	DEQ made available the draft permit and statement of basis for peer and regional office review.

November 4, 2019	DEQ made available the draft permit and statement of basis for applicant review.
November 7, 2019	DEQ received the permit processing fee.
November 22, 2019	DEQ issued the final permit and statement of basis.

TECHNICAL ANALYSIS

Emissions Units and Control Equipment

Table 1 EMISSIONS UNIT AND CONTROL EQUIPMENT INFORMATION

Sources	Control Equipment	Emission Point ID No.
Structural Steel Welding: Max. production: 2,303,880 lb/yr of welding wire	Filtration Unit: Manufacturer: Robovent or Equivalent Model: DTS-13000-10 Type: Cartridge No. of cartridges: 10 Control efficiency: 99.5% at 0.5 micron	Fan 1, Fan 2 Exit height: 37 ft Exit diameter: 3.7 ft Exit flow velocity: 47.4 ft/sec Exit temperature: ambient
Plasmarc Cutters (8 units): Manufacturer: FPB 1500/3 or Equivalent Model: Hypertherm HT2000	Dust Collector: Manufacturer: Donaldson or Equivalent Model: DF T2-8 Number of bags: 8 Control efficiency: 99.99% at 0.5 micron	Fan 1, Fan 2 Exit height: 37 ft Exit diameter: 3.7 ft Exit flow velocity: 47.4 ft/sec Exit temperature: ambient
Abrasive Blasting: Manufacturer: FICEP Shot Blast Machine or Equivalent Abrasive: Steel shot/steel grit	Dust Collector: Manufacturer: Wheelabrator or Equivalent Model: Air-Shoc A40/20-T2-VO-A Type: Cartridge No. of cartridges: 38	Vent 1 Exit height: 36.5 ft Exit diameter: 2.82 ft Exit flow velocity: 0.8 ft/sec Exit temperature: ambient
Natural Gas Process Heating and Cutting Torches: Manufacturer: Proprietary	None	Fan 1, Fan 2 Exit height: 37 ft Exit diameter: 3.7 ft Exit flow velocity: 47.4 ft/sec Exit temperature: ambient
Steel Parts Coating: Coating: Sherwin Williams, B66 series, Universal Acrylic Primer or Equivalent	High Transfer Efficiency Application Equipment (65 % or greater)	Unenclosed Outdoor Application
Natural Gas Space Heating (28 units): Type: Gas-fired infrared Manufacturer: Detroit Radiant or Equivalent Model: DR160 Rating: 160,000 Btu/Hr	None	F1, F2, F3, F4, F5, F6, F7, F8 Exit height: 19.3 ft Exit diameter: 0.25 ft Exit flow velocity: 16 ft/sec Exit temperature: ambient
Emergency Fire-Pump Engine: Manufacturer: John Deere Model: JU6H-UFAD98 Fuel: ULSD Engine Model Yr: 2014 Rating: 315 HP	None	FP Exit height: 11 ft Exit diameter: 0.5 ft Exit flow velocity: horizontal Exit temperature: 961 °F

Sources	Control Equipment	Emission Point ID No.
Emergency IC Engine Manufacturer: Kohler Model: 60REZGB Fuel: Natural gas Fuel consumption: 790 ft^3/hr Power Rating: 60 KW (80.5 hp)	None	EG Exit height: 12 ft Exit diameter: 0.5 ft Exit flow velocity: 165 ft/sec Exit temperature: 900 °F
Two Natural Gas-fired Roof-Top Units Manufacturer: Carrier Model: 48HCED17A6A6-0AOGO Fuel: Natural gas Rating: 0.31 MMBtu/hr Type: Direct fired Manufacturer: Carrier Model: 48HCED14A2A6-0AOGO Fuel: Natural gas Rating: 0.24 MMBtu/hr Type: Direct fired	None	Not available[1]
Emergency IC Engine for Office Building Manufacturer: Kohler Model: KG40 Fuel: Natural gas Fuel consumption: 730 ft^3/hr Power Rating: 97.9 hp (72.5 kw) Type: Direct fired Model year: 2018 Cylinder displacement: 0.78 liters/cylinder	None	Exit height: 3.84 ft Exit diameter: 0.25 ft Exit flow rate: 350 acfm Exit temperature: 1227 °F
Natural gas-fired MAU for heating and cooling Bay 5 Manufacturer: Greenheck Model: DGX-P116-H22-MF Fuel: Natural gas Rating: 0.244 MMBtu/hr Type: Direct fired	None	Not available[1]

[1] Stack information was not provided in the application as this permitting action does not require modeling

Emissions Inventories

Potential to Emit

IDAPA 58.01.01 defines Potential to Emit as the maximum capacity of a facility or stationary source to emit an air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the facility or source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is state or federally enforceable. Secondary emissions do not count in determining the potential to emit of a facility or stationary source.

Using this definition of Potential to Emit, an emission inventory was developed for all emissions units at the facility (see Appendix A). Emissions estimates of criteria pollutant and HAP were based on emission factors from AP-42, equipment vendors, operation of 7,296 hours per year, and process information specific to the facility for this proposed project.

Pre-Project Potential to Emit

Pre-project Potential to Emit is used to establish the change in emissions at a facility as a result of this project.

The following table presents the pre-project potential to emit for all criteria pollutants from all emissions units at the facility as submitted by the Applicant and verified by DEQ staff. See Appendix A for a detailed presentation of the calculations of these emissions for each emissions unit.

Table 2 PRE-PROJECT POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS

Source	$PM_{10}/PM_{2.5}$		SO_2		NO_X		CO		VOC	
	lb/hr[a]	T/yr[b]	lb/hr[a]	T/yr[b]	lb/hr[a]	T/yr[b]	lb/hr[a]	T/yr[b]	lb/hr[a]	T/yr[b]
Structural Steel Welding	0.02	0.09	--	--	--	--	--	--	--	--
Plasmarc Cutters	0.01	0.04	--	--	--	--	--	--	--	--
Abrasive Blasting	0.03	0.10	--	--	--	--	--	--	--	--
Natural Gas Process Heating and Cutting Torches	0.01	0.03	5.76E-04	2.10E-03	0.10	0.35	0.08	0.29	0.01	0.02
Structural Steel Parts Painting	1.58	1.58	--	--	--	--	--	--	1.60	1.60
Natural Gas Space Heating and Furnaces [d]	0.03	0.12	2.64E-03	9.61E-03	0.44	1.60	0.37	1.35	0.02	0.09
Emergency Fire-Pump Engine [c]	0.04	2.08E-03	3.28E-03	1.64E-04	1.87	0.09	0.28	1.39E-02	0.07	3.47E-03
Emergency IC Engine	1.56E-02	7.82E-04	4.74E-04	2.37E-05	1.78	0.09	3.00	0.15	2.39E-02	1.19E-03
Pre-Project Totals	**1.73**	**1.95**	**0.01**	**0.01**	**4.19**	**2.14**	**3.72**	**1.80**	**1.72**	**1.71**

a) Controlled average emission rate in pounds per hour is a daily average, based on the proposed daily operating schedule and daily limits.
b) Controlled average emission rate in tons per year is an annual average, based on the proposed annual operating schedule and annual limits.
c) The fire-pump annual limit is revised to reflect that 100 hr/yr instead of 500 hr/yr is used to estimate fire-pump PTE. In the application, the applicant provided the supporting documents for using 100 hr/yr instead of 500 hr/yr to estimate the fire-pump PTE.
d) The emissions rates of the 56 uninstalled heating units are excluded from the pre-project PTE as they have never been installed and do not have PTE.

Post Project Potential to Emit

Post project Potential to Emit is used to establish the change in emissions at a facility and to determine the facility's classification as a result of this project. Post project Potential to Emit includes all permit limits resulting from this project.

The following table presents the post project Potential to Emit for criteria pollutants from all emissions units at the facility as determined by DEQ staff. See Appendix A for a detailed presentation of the calculations of these emissions for each emissions unit.

Table 3 POST PROJECT POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS

Source	$PM_{10}/PM_{2.5}$		SO_2		NO_X		CO		VOC	
	lb/hr[a]	T/yr[b]	lb/hr[a]	T/yr[b]	lb/hr[a]	T/yr[b]	lb/hr[a]	T/yr[b]	lb/hr[a]	T/yr[b]
Structural Steel Welding	0.02	0.09	--	--	--	--	--	--	--	--
Plasmarc Cutters	0.01	0.04	--	--	--	--	--	--	--	--
Abrasive Blasting	0.03	0.10	--	--	--	--	--	--	--	--
Natural Gas Process Heating and Cutting Torches	0.01	0.03	5.76E-04	2.10E-03	0.10	0.35	0.08	0.29	0.01	0.02
Structural Steel Parts Painting	1.58	1.58	--	--	--	--	--	--	1.60	1.60
Natural Gas Space Heating and Furnaces	0.03	0.12	2.64E-03	9.61E-03	0.44	1.60	0.37	1.35	0.02	0.09

Source	$PM_{10}/PM_{2.5}$		SO_2		NO_X		CO		VOC	
	lb/hr[(a)]	T/yr[(b)]	lb/hr[(a)]	T/yr[(b)]	lb/hr[(a)]	T/yr[(b)]	lb/hr[(a)]	T/yr[(b)]	lb/hr[(a)]	T/yr[(b)]
Emergency Fire-Pump Engine	0.04	2.08E-03	3.28E-03	1.64E-04	1.87	0.09	0.28	1.39E-02	0.07	3.47E-03
Emergency IC Engine	0.02	7.82E-04	4.74E-04	2.37E-05	1.78	0.09	3.00	0.15	0.02	1.19E-03
New Natural Gas-Fired Heaters	0.01	0.02	4.67E-04	1.70E-03	0.08	0.28	0.07	0.24	0.004	0.02
Emergency Generator Engine for Office Building	0.01	7.23E-04	4.38E-04	2.19E-05	1.14	0.06	3.19	0.16	0.02	0.001
Post Project Totals	**1.75**	**1.97**	**0.01**	**0.01**	**5.41**	**2.48**	**6.98**	**2.20**	**1.75**	**1.73**

a) Controlled average emission rate in pounds per hour is a daily average, based on the proposed daily operating schedule and daily limits.
b) Controlled average emission rate in tons per year is an annual average, based on the proposed annual operating schedule and annual limits.

Change in Potential to Emit

The change in facility-wide potential to emit is used to determine if a public comment period may be required and to determine the processing fee per IDAPA 58.01.01.225. The following table presents the facility-wide change in the potential to emit for criteria pollutants.

Table 4 CHANGES IN POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS

Source	$PM_{10}/PM_{2.5}$		SO_2		NO_X		CO		VOC	
	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
Pre-Project Potential to Emit	1.73	1.95	0.01	0.01	4.19	2.14	3.72	1.80	1.72	1.71
Post Project Potential to Emit	1.75	1.97	0.01	0.01	5.41	2.48	6.98	2.20	1.75	1.73
Changes in Potential to Emit	**0.02**	**0.02**	**0.00**	**0.00**	**1.22**	**0.34**	**3.26**	**0.40**	**0.03**	**0.02**

TAP Emissions

A summary of the estimated PTE emissions increase of toxic air pollutants (TAP) is provided in the following table.

Table 5 PROJECT EMISSIONS INCREMENTS FOR TOXIC AIR POLLUTANTS

TAPs	New Natural Gas-fired Heaters	Emergency Engine for Office Building	Total	IDAPA EL[a]	Exceeds Screening Level (EL)?
	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	
1,1-Dichloroethane	NA	8.41E-06	8.41E-06	2.70E+01	N
1,2-Dichloropropane	NA	9.68E-06	9.68E-06	2.31E+01	N
3-Methylchloranthene	1.40E-09	NA	1.40E-09	NA	N
Barium	3.43E-06	NA	3.43E-06	3.30E-02	N
Benzene[b]	1.63E-06	1.18E-03	1.63E-06	8.00E-04	N
Beryllium[c]	9.34E-09	NA	9.34E-09	2.80E-05	N
Cadmium[c]	8.56E-07	NA	8.56E-07	3.70E-06	N
Carbon Tetrachloride[b]	NA	1.32E-05			
Chlorobenzene[b]	NA	9.61E-06			
Chloroform[b]	NA	1.02E-05			
Chromium[c]	1.09E-06	NA	1.09E-06	3.30E-02	N
Cobalt[c]	6.54E-08	NA	6.54E-08	3.30E-03	N
Copper	6.62E-07	NA	6.62E-07	1.30E-02	N
Dichlorobenzene	9.34E-07	NA	9.34E-07	2.00E+01	N

TAPs	New Natural Gas-fired Heaters	Emergency Engine for Office Building	Total	IDAPA EL[a]	Exceeds Screening Level (EL)?
	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	
Ethylbenzene[b]	NA	1.85E-05			
Ethylene Dibromide[b]	NA	1.59E-05			
Formaldehyde[b]	5.84E-05	1.53E-02	5.84E-05	5.10E-04	N
Hexane[c]	1.40E-03	NA	1.40E-03	1.20E+01	N
Manganese[c]	2.96E-07	NA	2.96E-07	6.70E-02	N
Methanol[b]	NA	2.28E-03			
Methylene Chloride[b]	NA	3.07E-05			
Molybdenum	8.56E-07	NA	8.56E-07	3.33E-01	N
Naphthalene[b]	4.75E-07	7.23E-05	4.75E-07	3.33E+00	N
Nickel[c]	1.63E-06	NA	1.63E-06	2.70E-05	N
PAH[b]	2.72E-08	1.05E-04	2.72E-08	2.00E-06	N
POM or 7-PAH[c, d]	8.88E-09	NA	8.88E-09	2.00E-06	N
Pentane	2.02E-03	NA	2.02E-03	1.18E+02	N
Selenium[c]	1.87E-08	NA	1.87E-08	1.30E-02	N
Styrene[b]	NA	8.86E-06			
Toluene[b]	2.65E-06	4.15E-04	2.65E-06	2.50E+01	N
Vanadium	1.79E-06	NA	1.79E-06	3.00E-03	N
Vinyl Chloride[b]	NA	5.35E-06			
Xylene[b]	NA	1.45E-04			
Zinc	2.26E-05	NA	2.26E-05	6.67E-01	N

a) IDAPA EL = 58.01.01.585/586 Screening Emission Level
b) TAP emissions from the emergency generator that are HAP emissions are excluded for TAP analysis per DEQ's policy: "It is presumed that EPA evaluated the 187 HAPs when developing the emission standards for new, modified or existing stationary sources regulated by 40 CFR Part 63; therefore, no further review is required under IDAPA 58.01.01.210 for these pollutants for sources subject to 40 CFR Part 63, including sources specifically exempted within the subpart." The emergency generator engine is required to meet the requirements of 40 CFR 63 Subpart ZZZZ by meeting the requirements of 40 CFR part 60 Subpart JJJJ in accordance with 40 CFR 63.6590(c).
c) HAPs that are not subject to 40 CFR Part 63 (i.e. TAP emissions from natural gas-fired heaters)
d) Polycyclic Organic Matter (POM) is considered as one TAP comprised of: benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, chrysene, indeno(1,2,3-cd)pyrene, benzo(a)pyrene. The total is compared to benzo(a)pyrene.

Modeling is not required for any TAP because none of the ELs identified in IDAPA 58.01.01.585 and 586 was exceeded as shown in the above table.

Ambient Air Quality Impact Analyses

The estimated emission rates of PM_{10}, $PM_{2.5}$, SO_2, NO_X, CO, and TAP from this project were below applicable screening emission levels (EL) and published DEQ modeling thresholds established in IDAPA 58.01.01.585-586 and in the State of Idaho Air Quality Modeling Guideline[1]. Therefore, modeling is not required.

[1] Criteria pollutant thresholds in Table 2, State of Idaho Guideline for Performing Air Quality Impact Analyses, Doc ID AQ-011, September 2013.

REGULATORY ANALYSIS

Attainment Designation (40 CFR 81.313)

The facility is located in Canyon County, which is designated as attainment or unclassifiable for $PM_{2.5}$, PM_{10}, SO_2, NO_2, CO, and Ozone. Refer to 40 CFR 81.313 for additional information.

Facility Classification

The AIRS/AFS facility classification codes are as follows:

For HAPs (Hazardous Air Pollutants) Only:

A = Use when any one HAP has actual or potential emissions ≥ 10 T/yr or if the aggregate of all HAPS (Total HAPs) has actual or potential emissions ≥ 25 T/yr.

SM80 = Use if a synthetic minor (potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable limitations) and the permit sets limits ≥ 8 T/yr of a single HAP or ≥ 20 T/yr of THAP.

SM = Use if a synthetic minor (potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable limitations) and the potential HAP emissions are limited to < 8 T/yr of a single HAP and/or < 20 T/yr of THAP.

B = Use when the potential to emit without permit restrictions is below the 10 and 25 T/yr major source threshold

UNK = Class is unknown

For All Other Pollutants:

A = Actual or potential emissions of a pollutant are ≥ 100 T/yr.

SM80 = Use if a synthetic minor for the applicable pollutant (potential emissions fall below 100 T/yr if and only if the source complies with federally enforceable limitations) and potential emissions of the pollutant are ≥ 80 T/yr.

SM = Use if a synthetic minor for the applicable pollutant (potential emissions fall below 100 T/yr if and only if the source complies with federally enforceable limitations) and potential emissions of the pollutant are < 80 T/yr.

B = Actual and potential emissions are < 100 T/yr without permit restrictions.

UNK = Class is unknown.

Table 6 REGULATED AIR POLLUTANT FACILITY CLASSIFICATION

Pollutant	Uncontrolled PTE (T/yr)	Permitted PTE (T/yr)	Major Source Thresholds (T/yr)	AIRS/AFS Classification
PM	>100	<100	**100**	SM
PM_{10}	>100	<100	**100**	SM
$PM_{2.5}$	>100	<100	**100**	SM
SO_2	< 100	< 100	**100**	B
NO_X	< 100	< 100	**100**	B
CO	< 100	< 100	**100**	B
VOC	< 100	< 100	**100**	B
HAP (single)	<10	<10	**10**	B
HAP (total)	<25	<25	**25**	B

Permit to Construct (IDAPA 58.01.01.201)

IDAPA 58.01.01.201 ..... Permit to Construct Required

The permittee has requested that a PTC be issued to the facility for the proposed new emissions sources. Therefore, a permit to construct is required to be issued in accordance with IDAPA 58.01.01.220. This permitting

action was processed in accordance with the procedures of IDAPA 58.01.01.200-228.

Tier II Operating Permit (IDAPA 58.01.01.401)

IDAPA 58.01.01.401 ..... Tier II Operating Permit

The application was submitted for a permit to construct (refer to the Permit to Construct section), and an optional Tier II operating permit has not been requested. Therefore, the procedures of IDAPA 58.01.01.400–410 were not applicable to this permitting action.

Visible Emissions (IDAPA 58.01.01.625)

IDAPA 58.01.01.625 ..... Visible Emissions

The sources of PM emissions at this facility are subject to the State of Idaho visible emissions standard of 20% opacity. This requirement is assured by Permit Conditions 2.4 and 3.4.

Title V Classification (IDAPA 58.01.01.300, 40 CFR Part 70)

IDAPA 58.01.01.301 ..... Requirement to Obtain Tier I Operating Permit

Post project facility-wide emissions from this facility do not have a potential to emit greater than 100 tons per year for PM_{10}, SO_2, NO_X, CO, and VOC or 10 tons per year for any one HAP or 25 tons per year for all HAP combined as demonstrated previously in the Emissions Inventories Section of this analysis. Therefore, the facility is not a Tier I source in accordance with IDAPA 58.01.01.006 and the requirements of IDAPA 58.01.01.301 do not apply.

PSD Classification (40 CFR 52.21)

40 CFR 52.21 ..... Prevention of Significant Deterioration of Air Quality

The facility is not a major stationary source as defined in 40 CFR 52.21(b)(1), nor is it undergoing any physical change at a stationary source not otherwise qualifying under paragraph 40 CFR 52.21(b)(1) as a major stationary source, that would constitute a major stationary source by itself as defined in 40 CFR 52. Therefore in accordance with 40 CFR 52.21(a)(2), PSD requirements are not applicable to this permitting action. The facility is not a designated facility as defined in 40 CFR 52.21(b)(1)(i)(a), and does not have facility-wide emissions of any criteria pollutant that exceed 250 T/yr.

NSPS Applicability (40 CFR 60)

40 CFR 60, Subpart IIII ..... Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

The facility's fire-pump engine is subject to the requirements of 40 CFR 60 Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines. No changes are made to the engine or its operation. The engine is subject to the same requirements as identified in the existing permit. Detailed regulatory analysis can be found in the SOB for PTC No. P-2015.0022 project 61965 issued March 16, 2018. (2018AAG118[v2])

40 CFR 60, Subpart JJJJ ..... Standards of Performance for Stationary Spark Ignition Internal Combustion Engines

The Kohler emergency engine (60KW) is subject to this subpart. No changes are made to the engine or its operation. The engine is subject to the same requirements as identified in the existing permit. Detailed regulatory analysis can be found in the SOB for PTC No. P-2015.0022 project 61965 issued March 16, 2018. (2018AAG118[v2]).

The new Kohler emergency engine (97.9 hp) for the new office building is also subject to this subpart. The detailed regulatory analysis can be found in Appendix B of this document.

NESHAP Applicability (40 CFR 61)

The facility is not subject to any NESHAP requirements in 40 CFR 61.

MACT/GACT Applicability (40 CFR 63)

40 CFR 63, Subpart ZZZZ..... National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

The Kohler emergency engine (60 KW) is subject to this subpart. The Kohler emergency engine complies with this subpart by complying with 40 CFR part 60 subpart JJJJ. Detailed regulatory analysis can be found in the SOB for PTC No. P-2015.0022 project 61965 issued March 16, 2018. (2018AAG118[v2]).

The new Kohler emergency engine (97.9 hp) for the new office building is also subject to this subpart. It will comply with this subpart by complying with 40 CFR part 60 subpart JJJJ. The detailed regulatory analysis can be found in Appendix B of this document.

40 CFR 63, Subpart XXXXXX ..... National Emission Standards for Hazardous Air Pollutants: Area Source Standards for Nine Metal Fabrication and Finishing Source Categories

The manufacturing operation at the facility is subject this subpart. No changes are made to the operation. Therefore, it is subject to the same requirements as identified in the existing permit. Detailed regulatory analysis can be found in the SOB for PTC No. P-2015.0022 project 61965 issued March 16, 2018. (2018AAG118[v2]).

Permit Conditions Review

This section describes only those permit conditions that have been added, revised, modified or deleted as a result of this permitting action.

Permit Condition 1.1 states the purpose of this permitting action.

Permit Condition 1.3 states that this PTC will replace Permit to Construct No. P-2015.0022, issued on March 16, 2018.

Table 1.1 is revised to reflect the addition of new emissions units and the removal of uninstalled space heating units (56 units).

Permit Condition 2.1 and Table 2.1 are updated to include the new MAU and the two new gas-fired roof top heaters and to remove the uninstalled space heating units.

Permit Conditions 3.1 and 3.2 and Table 3.1 are revised to include the new 97.9 hp natural gas-fired Kohler engine for the new office building.

Permit Condition 3.3

For this permitting action, emissions limits for the new natural gas-fired emergency generator are not necessary because the PTE of new emissions units of this project is well below regulatory concern (BRC) and therefore, the modeling analysis is not required.

New Permit Condition 3.17

In accordance with 40 CFR 60.4237(c), the permittee shall install a non-resettable hour meter upon startup of each emergency engine because the permittee operates an emergency stationary spark ignition (SI) internal combustion engine that is less than 130 HP, was built on or after July 1, 2008, and does not meet the standards applicable to non-emergency engines. Both Kohler engines is subject to this requirement.

PUBLIC REVIEW

Public Comment Opportunity

An opportunity for public comment period on the application was provided in accordance with IDAPA 58.01.01.209.01.c. During this time, there was not a request for a public comment period on DEQ's proposed action. Refer to the chronology for public comment opportunity dates.

APPENDIX A – EMISSIONS INVENTORIES

Gayle Manufacturing Company GMC-A

Emissions Summary

Table 1: Pre-Project PTE

Pollutant		Existing NG Heaters	Process Heating and Cutting	Painting	Fire Pump Engine	Bay 5 Emergency Generator Engine	Welding		Abrasive Blasting		Plasmarc Cutting		Pre-Project Uncontrolled Total	Pre-Project Controlled Total
							Uncontrolled	Controlled	Uncontrolled	Controlled	Uncontrolled	Controlled		
NOx	lb/hr	0.44	0.10	NA	1.87	1.78	NA	NA	NA	NA	NA	NA	4.19	4.19
	tpy	1.60	0.35	NA	0.47	0.09	NA	NA	NA	NA	NA	NA	2.51	2.51
CO	lb/hr	0.37	0.08	NA	0.28	3.00	NA	NA	NA	NA	NA	NA	3.72	3.72
	tpy	1.35	0.29	NA	0.07	0.15	NA	NA	NA	NA	NA	NA	1.86	1.86
PM10	lb/hr	0.03	0.01	1.58	0.04	0.02	3.97	0.02	NA	0.03	111.61	0.01	117.26	1.73
	tpy	0.12	0.03	1.58	0.01	0.00	17.39	0.09	NA	0.10	407.16	0.04	426.29	1.96
PM2.5	lb/hr	0.03	0.01	1.58	0.04	0.02	3.97	0.02	NA	0.03	111.61	0.01	117.26	1.73
	tpy	0.12	0.03	1.58	0.01	0.00	17.39	0.09	NA	0.10	407.16	0.04	426.29	1.96
SO2	lb/hr	2.64E-03	5.76E-04	NA	3.28E-03	4.74E-04	NA	NA	NA	NA	NA	NA	0.01	0.01
	tpy	9.61E-03	2.10E-03	NA	8.19E-04	2.37E-05	NA	NA	NA	NA	NA	NA	0.01	0.01
Lead	lb/month[3]	1.34E-03	2.92E-04	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.002	0.002
VOC	lb/hr	0.02	0.01	1.60	0.07	0.02	NA	NA	NA	NA	NA	NA	1.72	1.72
	tpy	0.09	0.02	1.60	0.02	0.00	NA	NA	NA	NA	NA	NA	1.73	1.73
CO2e	tpy	2,298	419	NA	84.89	4.72	NA	NA	NA	NA	NA	NA	2805.81	2805.81
HAPs[4]	tpy	0.18	0.04	0.00	0.000	0.000	0.87	0.004	1.00E-01	0.10	40.72	0.004	41.91	0.33

[1] *State of Idaho Guideline for Performing Air Quality Impact Analysis*, Table 2: Modeling Thresholds for Criteria Pollutants.

[2] NOx emission rate for emergency standby generator is an intermittent source as does not require modeling

[3] Used the annual ton/yr total and divided by 12 to calculate a monthly average

[4] HAPs are assumed to equal TAPs for facility-wide tpy aggregate

Gayle Manufacturing Company GMC-A

Emissions Summary

Table 2: Post-Project PTE

Pollutant		Existing NG Heaters	New NG Heaters	Process Heating and Cutting	Painting	Fire Pump Engine	Office NG Emergency Generator Engine	Bay 5 NG Emergency Generator Engine	Welding		Abrasive Blasting		Plasmarc Cutting		Post-Project Uncontrolled Total	Post-Project Controlled Total
									Uncontrolled	Controlled	Uncontrolled	Controlled	Uncontrolled	Controlled		
NOx	lb/hr	0.44	0.08	0.10	NA	1.87	1.14	1.78	NA	NA	NA	NA	NA	NA	4.97	4.97
	tpy	1.60	0.28	0.35	NA	0.09	0.06	0.09	NA	NA	NA	NA	NA	NA	0.87	0.87
CO	lb/hr	0.37	0.07	0.08	NA	0.28	3.19	3.00	NA	NA	NA	NA	NA	NA	6.61	6.61
	tpy	1.35	0.24	0.29	NA	0.01	0.16	0.15	NA	NA	NA	NA	NA	NA	0.86	0.86
PM10	lb/hr	0.03	0.01	0.01	1.58	0.04	0.01	0.02	3.97	0.02	NA	0.03	111.61	0.01	117.24	1.72
	tpy	0.12	0.02	0.03	1.58	0.00	0.00	0.00	17.39	0.09	NA	0.10	407.16	0.04	426.18	1.85
PM2.5	lb/hr	0.03	0.01	0.01	1.58	0.04	0.01	0.02	3.97	0.02	NA	0.03	111.61	0.01	117.24	1.72
	tpy	0.12	0.02	0.03	1.58	0.00	0.00	0.00	17.39	0.09	NA	0.10	407.16	0.04	426.18	1.85
SO2	lb/hr	2.64E-03	4.67E-04	5.76E-04	NA	3.28E-03	4.38E-04	4.74E-04	NA	NA	NA	NA	NA	NA	0.01	0.01
	tpy	9.61E-03	1.70E-03	2.10E-03	NA	1.64E-04	2.19E-05	2.37E-05	NA	NA	NA	NA	NA	NA	0.00	0.00
Lead	lb/month[3]	1.34E-03	1.18E-07	2.92E-04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0003	0.0003
VOC	lb/hr	0.02	0.004	0.005	1.600	0.069	0.02	2.39E-02	NA	NA	NA	NA	NA	NA	1.72	1.72
	tpy	0.09	0.02	0.019	1.600	0.003	0.001	1.19E-03	NA	NA	NA	NA	NA	NA	1.64	1.64
CO2e	tpy	2.298	339.20	419	NA	16.98	4.63	4.72	NA	NA	NA	NA	NA	NA	784.13	784.13
HAPs[4]	tpy	0.18	0.03	0.04	0.00	0.000	0.0003	0.000	0.87	0.004	0.10	0.10	40.72	0.004	41.94	0.36

[1] *State of Idaho Guideline for Performing Air Quality Impact Analysis*, Table 2: Modeling Thresholds for Criteria Pollutants.

[2] NOx emission rate for emergency standby generator is an intermittent source, so does not require modeling.

[3] Used the annual ton/yr total and divided by 12 to calculate a monthly average

[4] HAPs are assumed to equal TAPs for facility-wide tpy aggregate

Gayle Manufacturing Company GMC-A
Emissions Summary

Table 3: Emissions Delta

Pollutant		Post-Project Controlled Total	Pre-Project Controlled Total	Emissions Delta	Below Regulatory Concern (10% of Sig ER) TPY
NOx	lb/hr	4.97	4.19	0.78	
	tpy	0.87	2.51	**-1.64**	**4.0**
CO	lb/hr	6.61	3.72	2.89	
	tpy	0.86	1.86	**-1.00**	**10.0**
PM10	lb/hr	1.72	1.73	-0.01	
	tpy	1.85	1.96	**-0.11**	**1.5**
PM2.5	lb/hr	1.72	1.73	-0.01	
	tpy	1.85	1.96	**-0.11**	**1.0**
SO2	lb/hr	0.01	0.01	0.00	
	tpy	0.00	0.01	**-0.01**	**4.0**
Lead	lb/month[3]	0.00	0.002	**-0.001**	**0.06**
VOC	lb/hr	1.72	1.72	0.00	
	tpy	1.64	1.73	**-0.09**	**4.0**
CO2e	tpy	784.13	2,805.81	-2021.67	
HAPs[4]	tpy	0.36	0.33	0.03	

[1] *State of Idaho Guideline for Performing Air Quality Impact Analysis* , Table 2: Modeling Thresholds for Criteria Pollutants.

[2] NOx emission rate for emergency standby generator is an intermittent source, so does not require modeling.

[3] Used the annual ton/yr total and divided by 12 to calculate a monthly average

[4] HAPs are assumed to equal TAPs for facility-wide tpy aggregate

Gayle Manufacturing Company GMC-A

Natural Gas Heater Emissions

Natural Gas Heating Value (BTU/scf) 1,020 *

		Bay 2 to Bay 6		Bay7		Total	
Model		DR160		DR160			
Number of Units		15		10			
Heat Input (MMBTU/hr)		0.16		0.16			
Natural Gas Usage (scf/hr)		2,824		1,569			
Natural Gas Usage (10^6scf/hr)		0.00282		0.00157			
Annual Hours of Operations (hrs/yr)[2]		7,296		7,296			
Criteria Pollutants	**Emission Factor[1]**						
	(lb/10^6scf)	**lb/hr**	**tpy**	**lb/hr**	**tpy**	**lb/hr**	**tpy**
NO_x	100	0.28	1.03	0.16	0.57	0.44	1.60
CO	84	0.24	0.87	0.13	0.48	0.37	1.35
PM[3]	7.6	0.02	0.08	0.01	0.04	0.03	0.12
SO_2	0.6	0.00	0.01	0.00	0.00	0.00	0.01
VOC	5.5	0.02	0.06	0.01	0.03	0.02	0.09
HAP Emissions							
	(lb/10^6scf)	**lb/hr**	**tpy**	**lb/hr**	**tpy**	**lb/hr**	**tpy**
2-Methylnaphthalene	2.40E-05	6.78E-08	2.47E-07	3.76E-08	1.37E-07	1.05E-07	3.85E-07
3-Methylchloranthene	1.80E-06	5.08E-09	1.85E-08	2.82E-09	1.03E-08	7.91E-09	2.88E-08
7,12-Dimethylbenz(a)anthracene	1.60E-05	4.52E-08	1.65E-07	2.51E-08	9.16E-08	7.03E-08	2.56E-07
7-PAH group		3.22E-08	1.17E-07	1.79E-08	6.52E-08	5.01E-08	1.83E-07
Benza(a)anthracene	1.80E-06	5.08E-09	1.85E-08	2.82E-09	1.03E-08	7.91E-09	2.88E-08
Benzo(b)fluoranthene	1.80E-06	5.08E-09	1.85E-08	2.82E-09	1.03E-08	7.91E-09	2.88E-08
Benzo(k)fluoranthene	1.80E-06	5.08E-09	1.85E-08	2.82E-09	1.03E-08	7.91E-09	2.88E-08
Dibenzo(a,h)anthracene	1.20E-06	3.39E-09	1.24E-08	1.88E-09	6.87E-09	5.27E-09	1.92E-08
Chrysene	1.80E-06	5.08E-09	1.85E-08	2.82E-09	1.03E-08	7.91E-09	2.88E-08
Indeno(1,2,3-cd)pyrene	1.80E-06	5.08E-09	1.85E-08	2.82E-09	1.03E-08	7.91E-09	2.88E-08
Benzo(a)pyrene	1.20E-06	3.39E-09	1.24E-08	1.88E-09	6.87E-09	5.27E-09	1.92E-08
Other-PAH (exclude 7-PAH)		9.88E-08	3.61E-07	5.49E-08	2.00E-07	1.54E-07	5.61E-07
Acenaphthene	1.80E-06	5.08E-09	1.85E-08	2.82E-09	1.03E-08	7.91E-09	2.88E-08
Acenaphthylene	1.80E-06	5.08E-09	1.85E-08	2.82E-09	1.03E-08	7.91E-09	2.88E-08
Anthracene	2.40E-06	6.78E-09	2.47E-08	3.76E-09	1.37E-08	1.05E-08	3.85E-08
Fluoranthene	3.00E-06	8.47E-09	3.09E-08	4.71E-09	1.72E-08	1.32E-08	4.81E-08
Fluorene	2.80E-06	7.91E-09	2.88E-08	4.39E-09	1.60E-08	1.23E-08	4.49E-08
Phenanathrene	1.70E-05	4.80E-08	1.75E-07	2.67E-08	9.73E-08	7.47E-08	2.72E-07
Pyrene	5.00E-06	1.41E-08	5.15E-08	7.84E-09	2.86E-08	2.20E-08	8.01E-08
Benzo(g,h,i)peryiene	1.20E-06	3.39E-09	1.24E-08	1.88E-09	6.87E-09	5.27E-09	1.92E-08
Benzene	2.10E-03	5.93E-06	2.16E-05	3.29E-06	1.20E-05	9.22E-06	3.36E-05
Butane	2.10E+00	5.93E-03	2.16E-02	3.29E-03	1.20E-02	9.22E-03	3.36E-02
Dichlorobenzene	1.20E-03	3.39E-06	1.24E-05	1.88E-06	6.87E-06	5.27E-06	1.92E-05
Ethane	3.10E+00	8.75E-03	3.19E-02	4.86E-03	1.77E-02	1.36E-02	4.97E-02
Formaldehyde	7.50E-02	2.12E-04	7.73E-04	1.18E-04	4.29E-04	3.29E-04	1.20E-03
Hexane	1.80E+00	5.08E-03	1.85E-02	2.82E-03	1.03E-02	7.91E-03	2.88E-02
Naphthalene	6.10E-04	1.72E-06	6.28E-06	9.57E-07	3.49E-06	2.68E-06	9.77E-06
Pentane	2.60E+00	7.34E-03	2.68E-02	4.06E-03	1.49E-02	1.14E-02	4.17E-02
Propane	1.60E+00	4.52E-03	1.65E-02	2.51E-03	9.16E-03	7.03E-03	2.56E-02
Toluene	3.40E-03	9.60E-06	3.50E-05	5.33E-06	1.95E-05	1.49E-05	5.45E-05
Arsenic	2.00E-04	5.65E-07	2.06E-06	3.14E-07	1.14E-06	8.78E-07	3.20E-06
Barium	4.40E-03	1.24E-05	4.53E-05	6.90E-06	2.52E-05	1.93E-05	7.05E-05
Beryllium	1.20E-05	3.39E-08	1.24E-07	1.88E-08	6.87E-08	5.27E-08	1.92E-07
Cadmium	1.10E-03	3.11E-06	1.13E-05	1.73E-06	6.29E-06	4.83E-06	1.76E-05
Chromium	1.40E-03	3.95E-06	1.44E-05	2.20E-06	8.01E-06	6.15E-06	2.24E-05
Cobalt	8.40E-05	2.37E-07	8.65E-07	1.32E-07	4.81E-07	3.69E-07	1.35E-06
Copper	8.50E-04	2.40E-06	8.76E-06	1.33E-06	4.86E-06	3.73E-06	1.36E-05
Manganese	3.80E-04	1.07E-06	3.91E-06	5.96E-07	2.17E-06	1.67E-06	6.09E-06
Mercury	2.60E-04	7.34E-07	2.68E-06	4.06E-07	1.49E-06	1.14E-06	4.17E-06
Molybdenum	1.10E-03	3.11E-06	1.13E-05	1.73E-06	6.29E-06	4.83E-06	1.76E-05
Nickel	2.10E-03	5.93E-06	2.16E-05	3.29E-06	1.20E-05	9.22E-06	3.36E-05
Selenium	2.40E-05	6.78E-08	2.47E-07	3.76E-08	1.37E-07	1.05E-07	3.85E-07
Vanadium	2.30E-03	6.49E-06	2.37E-05	3.61E-06	1.32E-05	1.01E-05	3.69E-05
Zinc	2.90E-02	8.19E-05	2.99E-04	4.55E-05	1.66E-04	1.27E-04	4.65E-04
Lead	0.0005	1.41E-06	5.15E-06	7.84E-07	2.86E-06	2.20E-06	8.01E-06
TAP Totals		3.20E-02	1.17E-01	1.78E-02	6.48E-02	4.97E-02	1.81E-01

GHG Emissions							
	kg/MMBtu[4]	**lb/hr**	**tpy**	**lb/hr**	**tpy**	**lb/hr**	**tpy**
CO_2	53.06	337	1,476	187	820	524.05	2295.34
CH_4	1.00E-03	0.01	0.028	0.00	0.015	0.01	0.04
N_2O	1.00E-04	0.00	0.003	0.00	0.002	0.001	0.004
CO_2e			1,477		821		2297.59

Notes

(1) Emission Factors from AP-42, Tables 1.4-1, 1.4-2, 1.4-3 and 1.4-4 (July 1998)

(2) Assume 24 hour/day operation, 6 days per week, 52 weeks per year minus 6 holidays

(3) Assume Total PM equals PM10 and PM2.5

(4) GHG emission factors from Climate Registry 2014 Default Emission Factors, Table 12.1 and 12.9

Gayle Manufacturing Company GMC-A

Natural Gas Heater Emissions, Makeup Air Unit Emissions, and Rooftop Units

Natural Gas Heating Value (BTU/scf) 1,020

		Bay 5 - HVAC		Office - Roof Top Unit		Office - Roof Top Unit		Total	
Model		Greenheck MAU-1		RTU-1		RTU-2			
Number of Units		1		1		1			
Heat Input (MMBTU/hr)		0.2441		0.31		0.24			
Natural Gas Usage (scf/hr)		239		304		235			
Natural Gas Usage (10^6scf/hr)		0.00024		0.00030		0.00024			
Annual Hours of Operations (hrs/yr)[2]		7,296		7,296		7,296			
Criteria Pollutants	**Emission Factor[1]**								
	(lb/10^6scf)	**lb/hr**	**tpy**	**lb/hr**	**tpy**	**lb/hr**	**tpy**	**lb/hr**	**tpy**
NO_x	100	0.02	0.09	0.03	0.11	0.02	0.09	0.08	0.28
CO	84	0.02	0.07	0.03	0.09	0.02	0.07	0.07	0.24
PM[3]	7.6	0.00	0.01	0.00	0.01	0.00	0.01	0.01	0.02
SO_2	0.6	0.0001	0.0005	0.0002	0.0007	0.0001	0.0005	0.0005	0.0017
VOC	5.5	0.001	0.005	0.002	0.006	0.001	0.005	0.004	0.02
HAP Emissions									
	(lb/10^6scf)	**lb/hr**	**tpy**	**lb/hr**	**tpy**	**lb/hr**	**tpy**	**lb/hr**	**tpy**
2-Methylnaphthalene	2.40E-05	5.74E-09	2.10E-08	7.29E-09	2.66E-08	5.65E-09	2.06E-08	1.87E-08	6.82E-08
3-Methylchloranthene	1.80E-06	4.31E-10	1.57E-09	5.47E-10	2.00E-09	4.24E-10	1.55E-09	1.40E-09	5.11E-09
7,12-Dimethylbenz(a)anthracene	1.60E-05	3.83E-09	1.40E-08	4.86E-09	1.77E-08	3.76E-09	1.37E-08	1.25E-08	4.54E-08
7-PAH group		2.73E-09	9.95E-09	3.46E-09	1.26E-08	2.68E-09	9.79E-09	8.88E-09	3.24E-08
Benza(a)anthracene	1.80E-06	4.31E-10	1.57E-09	5.47E-10	2.00E-09	4.24E-10	1.55E-09	1.40E-09	5.11E-09
Benzo(b)fluoranthene	1.80E-06	4.31E-10	1.57E-09	5.47E-10	2.00E-09	4.24E-10	1.55E-09	1.40E-09	5.11E-09
Benzo(k)fluoranthene	1.80E-06	4.31E-10	1.57E-09	5.47E-10	2.00E-09	4.24E-10	1.55E-09	1.40E-09	5.11E-09
Dibenzo(a,h)anthracene	1.20E-06	2.87E-10	1.05E-09	3.65E-10	1.33E-09	2.82E-10	1.03E-09	9.34E-10	3.41E-09
Chrysene	1.80E-06	4.31E-10	1.57E-09	5.47E-10	2.00E-09	4.24E-10	1.55E-09	1.40E-09	5.11E-09
Indeno(1,2,3-cd)pyrene	1.80E-06	4.31E-10	1.57E-09	5.47E-10	2.00E-09	4.24E-10	1.55E-09	1.40E-09	5.11E-09
Benzo(a)pyrene	1.20E-06	2.87E-10	1.05E-09	3.65E-10	1.33E-09	2.82E-10	1.03E-09	9.34E-10	3.41E-09
Other-PAH (exclude 7-PAH)		8.38E-09	3.06E-08	1.06E-08	3.88E-08	8.24E-09	3.00E-08	2.72E-08	9.94E-08
Acenaphthene	1.80E-06	4.31E-10	1.57E-09	5.47E-10	2.00E-09	4.24E-10	1.55E-09	1.40E-09	5.11E-09
Acenaphthylene	1.80E-06	4.31E-10	1.57E-09	5.47E-10	2.00E-09	4.24E-10	1.55E-09	1.40E-09	5.11E-09
Anthracene	2.40E-06	5.74E-10	2.10E-09	7.29E-10	2.66E-09	5.65E-10	2.06E-09	1.87E-09	6.82E-09
Fluoranthene	3.00E-06	7.18E-10	2.62E-09	9.12E-10	3.33E-09	7.06E-10	2.58E-09	2.34E-09	8.52E-09
Fluorene	2.80E-06	6.70E-10	2.44E-09	8.51E-10	3.10E-09	6.59E-10	2.40E-09	2.18E-09	7.95E-09
Phenanathrene	1.70E-05	4.07E-09	1.48E-08	5.17E-09	1.88E-08	4.00E-09	1.46E-08	1.32E-08	4.83E-08
Pyrene	5.00E-06	1.20E-09	4.37E-09	1.52E-09	5.54E-09	1.18E-09	4.29E-09	3.89E-09	1.42E-08
Benzo(g,h,i)perylene	1.20E-06	2.87E-10	1.05E-09	3.65E-10	1.33E-09	2.82E-10	1.03E-09	9.34E-10	3.41E-09
Benzene	2.10E-03	5.03E-07	1.83E-06	6.38E-07	2.33E-06	4.94E-07	1.80E-06	1.63E-06	5.96E-06
Butane	2.10E+00	5.03E-04	1.83E-03	6.38E-04	2.33E-03	4.94E-04	1.80E-03	1.63E-03	5.96E-03
Dichlorobenzene	1.20E-03	2.87E-07	1.05E-06	3.65E-07	1.33E-06	2.82E-07	1.03E-06	9.34E-07	3.41E-06
Ethane	3.10E+00	7.42E-04	2.71E-03	9.42E-04	3.44E-03	7.29E-04	2.66E-03	2.41E-03	8.80E-03
Formaldehyde	7.50E-02	1.79E-05	6.55E-05	2.28E-05	8.32E-05	1.76E-05	6.44E-05	5.84E-05	2.13E-04
Hexane	1.80E+00	4.31E-04	1.57E-03	5.47E-04	2.00E-03	4.24E-04	1.55E-03	1.40E-03	5.11E-03
Naphthalene	6.10E-04	1.46E-07	5.33E-07	1.85E-07	6.76E-07	1.44E-07	5.24E-07	4.75E-07	1.73E-06
Pentane	2.60E+00	6.22E-04	2.27E-03	7.90E-04	2.88E-03	6.12E-04	2.23E-03	2.02E-03	7.38E-03
Propane	1.60E+00	3.83E-04	1.40E-03	4.86E-04	1.77E-03	3.76E-04	1.37E-03	1.25E-03	4.54E-03
Toluene	3.40E-03	8.14E-07	2.97E-06	1.03E-06	3.77E-06	8.00E-07	2.92E-06	2.65E-06	9.66E-06
Arsenic	2.00E-04	4.79E-08	1.75E-07	6.08E-08	2.22E-07	4.71E-08	1.72E-07	1.56E-07	5.68E-07
Barium	4.40E-03	1.05E-06	3.84E-06	1.34E-06	4.88E-06	1.04E-06	3.78E-06	3.43E-06	1.25E-05
Beryllium	1.20E-05	2.87E-09	1.05E-08	3.65E-09	1.33E-08	2.82E-09	1.03E-08	9.34E-09	3.41E-08
Cadmium	1.10E-03	2.63E-07	9.60E-07	3.34E-07	1.22E-06	2.59E-07	9.44E-07	8.56E-07	3.12E-06
Chromium	1.40E-03	3.35E-07	1.22E-06	4.25E-07	1.55E-06	3.29E-07	1.20E-06	1.09E-06	3.98E-06
Cobalt	8.40E-05	2.01E-08	7.33E-08	2.55E-08	9.31E-08	1.98E-08	7.21E-08	6.54E-08	2.39E-07
Copper	8.50E-04	2.03E-07	7.42E-07	2.58E-07	9.42E-07	2.00E-07	7.30E-07	6.62E-07	2.41E-06
Manganese	3.80E-04	9.09E-08	3.32E-07	1.15E-07	4.21E-07	8.94E-08	3.26E-07	2.96E-07	1.08E-06
Mercury	2.60E-04	6.22E-08	2.27E-07	7.90E-08	2.88E-07	6.12E-08	2.23E-07	2.02E-07	7.38E-07
Molybdenum	1.10E-03	2.63E-07	9.60E-07	3.34E-07	1.22E-06	2.59E-07	9.44E-07	8.56E-07	3.12E-06
Nickel	2.10E-03	5.03E-07	1.83E-06	6.38E-07	2.33E-06	4.94E-07	1.80E-06	1.63E-06	5.96E-06
Selenium	2.40E-05	5.74E-09	2.10E-08	7.29E-09	2.66E-08	5.65E-09	2.06E-08	1.87E-08	6.82E-08
Vanadium	2.30E-03	5.50E-07	2.01E-06	6.99E-07	2.55E-06	5.41E-07	1.97E-06	1.79E-06	6.53E-06
Zinc	2.90E-02	6.94E-06	2.53E-05	8.81E-06	3.22E-05	6.82E-06	2.49E-05	2.26E-05	8.24E-05
Lead	0.0005	1.20E-07	4.37E-07	1.52E-07	5.54E-07	1.18E-07	4.29E-07	3.89E-07	1.42E-06
TAP Totals		2.71E-03	9.89E-03	3.44E-03	1.26E-02	2.66E-03	9.72E-03	8.82E-03	3.22E-02

GHG Emissions									
	kg/MMBtu[4]	**lb/hr**	**tpy**	**lb/hr**	**tpy**	**lb/hr**	**tpy**	**lb/hr**	**tpy**
CO_2	53.06	29	104	36	132	28	102	9.29E+01	339
CH_4	1.00E-03	0.00	0.002	0.00	0.002	0.00	0.002	1.75E-03	0
N_2O	1.00E-04	0.00	0.000	0.00	0.000	0.00	0.000	1.75E-04	0
CO_2e			104		132		103		339

Notes

(1) Emission Factors from AP-42, Tables 1.4-1, 1.4-2, 1.4-3 and 1.4-4 (July 1998)

(2) Assume 24 hour/day operation, 6 days per week, 52 weeks per year minus 6 holidays

(3) Assume Total PM equals PM10 and PM2.5

(4) GHG emission factors from Climate Registry 2014 Default Emission Factors, Table 12.1 and 12.9

Gayle Manufacturing Company GMC-A

Natural Gas Process Heating and Cutting

Natural Gas Heating Value (BTU/scf) 1,020

Heat Input (MMBTU/year)[1]		7150	
Natural Gas Usage (10^6scf/yr)		7.01	
Natural Gas Usage (10^6scf/hr)		0.00096	
Annual Hours of Operations (hrs/yr)[2]		7,296	
Criteria Pollutants	**Emission Factor[4]**		
	(lb/10^6scf)	**lb/hr**	**tpy**
NO_x	100	9.61E-02	3.50E-01
CO	84	8.07E-02	2.94E-01
PM[3]	7.6	7.30E-03	2.66E-02
SO_2	0.6	5.76E-04	2.10E-03
VOC	5.5	5.28E-03	1.93E-02
HAP Emissions			
	CAS	**(lb/10^6scf)**	lb/hr	tpy
2-Methylnaphthalene	91-57-6	2.40E-05	2.31E-08	8.41E-08
3-Methylchloranthene	56-49-5	1.80E-06	1.73E-09	6.31E-09
7,12-Dimethylbenz(a)anthracene	57-97-6	1.60E-05	1.54E-08	5.61E-08
7-PAH group	Total 7-PAH		1.10E-08	4.00E-08
Benzo(a)anthracene	56-55-3	1.80E-06	1.73E-09	6.31E-09
Benzo(b)fluoranthene	205-99-2	1.80E-06	1.73E-09	6.31E-09
Benzo(k)fluoranthene	207-08-9	1.80E-06	1.73E-09	6.31E-09
Dibenzo(a,h)anthracene	53-70-3	1.20E-06	1.15E-09	4.21E-09
Chrysene	218-01-9	1.80E-06	1.73E-09	6.31E-09
Indeno(1,2,3-cd)pyrene	193-39-5	1.80E-06	1.73E-09	6.31E-09
Benzo(a)pyrene	50-32-8	1.20E-06	1.15E-09	4.21E-09
Other-PAH (exclude 7-PAH)	Total other PAH		3.36E-08	1.23E-07
Acenaphthene	83-32-9	1.80E-06	1.73E-09	6.31E-09
Acenaphthylene	208-96-8	1.80E-06	1.73E-09	6.31E-09
Anthracene	120-12-7	2.40E-06	2.31E-09	8.41E-09
Fluoranthene	206-44-0	3.00E-06	2.88E-09	1.05E-08
Fluprene	86-73-7	2.80E-06	2.69E-09	9.81E-09
Phenanathrene	85-01-8	1.70E-05	1.63E-08	5.96E-08
Pyrene	129-00-0	5.00E-06	4.80E-09	1.75E-08
Benzo(g,h,i)perylene	191-24-2	1.20E-06	1.15E-09	4.21E-09
Benzene	71-43-2	2.10E-03	2.02E-06	7.36E-06
Butane	106-97-8	2.10E+00	2.02E-03	7.36E-03
Dichlorobenzene	95-50-1	1.20E-03	1.15E-06	4.21E-06
Ethane	74-84-0	3.10E+00	2.98E-03	1.09E-02
Formaldehyde	50-00-0	7.50E-02	7.21E-05	2.63E-04
Hexane	110-54-3	1.80E+00	1.73E-03	6.31E-03
Naphthalene	91-20-3	6.10E-04	5.86E-07	2.14E-06
Pentane	109-66-0	2.60E+00	2.50E-03	9.11E-03
Propane	74-98-6	1.60E+00	1.54E-03	5.61E-03
Toluene	108-88-3	3.40E-03	3.27E-06	1.19E-05
Arsenic	7440-38-2	2.00E-04	1.92E-07	7.01E-07
Barium	7440-39-3	4.40E-03	4.23E-06	1.54E-05
Beryllium	7440-41-7	1.20E-05	1.15E-08	4.21E-08
Cadmium	7440-43-9	1.10E-03	1.06E-06	3.86E-06
Chromium	7440-47-3	1.40E-03	1.35E-06	4.91E-06
Cobalt	7440-48-4	8.40E-05	8.07E-08	2.94E-07
Copper	7440-50-8(f)	8.50E-04	8.17E-07	2.98E-06
Manganese	7439-96-5(f)	3.80E-04	3.65E-07	1.33E-06
Mercury	7439-97-6	2.60E-04	2.50E-07	9.11E-07
Molybdenum	7439-98-7	1.10E-03	1.06E-06	3.86E-06
Nickel	7440-02-0	2.10E-03	2.02E-06	7.36E-06
Selenium	7782-49-2	2.40E-05	2.31E-08	8.41E-08
Vanadium	1314-62-1	2.30E-03	2.21E-06	8.06E-06
Zinc	7440-66-6	2.90E-02	2.79E-05	1.02E-04
Lead	7439-92-1	0.0005	4.80E-07	1.75E-06
TAP Totals			1.09E-02	3.97E-02

GHG Emissions			
	kg/MMBtu[5]	lb/hr	tpy
CO_2	53.06	95	418
CH_4	1.00E-03	0.002	0.008
N_2O	1.00E-04	0.0002	0.001
CO_2e			419

Notes

(1) Heat input (MMBtu/yr) was estimated based on propane usage of 79,000 gallon per year at a similar facility.

(2) Assume 24 hour/day operation, 6 days per week, 52 weeks per year minus 6 holidays

(3) Assume Total PM equals PM10 and PM2.5

(4) Emission Factors from AP-42, Tables 1.4-1, 1.4-2, 1.4-3 and 1.4-4 (July 1998)

(5) GHG emission factors from Climate Registry 2014 Default Emission Factors, Table 12.1 and 12.9.

Gayle Manufacturing Company GMC-A

Diesel Fire Pump Engine Emissions

	Emission Factor[1]	Fire Pump House	
Model		JU6H-UFAD98	
Number of Units		1	
Power Rating (BHP)		315	
ULSD Usage (gal/hr)		15	
Fuel Heat Content (MMBtu/gal)		0.138	
Heat Input (MMBtu/hr)		2.07	
Fuel Sulfur Content (ppm)		15	
Annual Hours of Operations (hrs/yr)[2]		100	
Criteria Pollutants	**(g/hp-hr)**	**lb/hr**	**tpy**
NO_x	2.7	1.87	9.37E-02
CO	0.4	0.28	1.39E-02
PM[3]	0.06	4.16E-02	2.08E-03
SO_2	NA	3.28E-03	1.64E-04
VOC	0.1	6.94E-02	3.47E-03

TAP Emissions

	CAS	(lb/MMBtu)	lb/hr	tpy
Benzene	71-43-2	9.33E-04	1.93E-03	9.66E-05
Toluene	108-88-3	4.09E-04	8.47E-04	4.23E-05
Xylene	1330-20-7	2.85E-04	5.90E-04	2.95E-05
1,3-Butadiene	106-99-0	3.91E-05	8.09E-05	4.05E-06
Formaldehyde	50-00-0	1.18E-03	2.44E-03	1.22E-04
Acetaldehyde	75-07-0	7.67E-04	1.59E-03	7.94E-05
Acrolein	107-02-8	9.25E-05	1.91E-04	9.57E-06
Naphthalene	91-20-3	8.48E-05	1.76E-04	8.78E-06
7-PAH (shown below)	Total 7-PAH		7.11E-06	3.55E-07
Benzo(a)anthracene	56-55-3	1.68E-06	3.48E-06	1.74E-07
Benzo(b)fluoranthene	205-99-2	9.91E-08	2.05E-07	1.03E-08
Benzo(k)fluoranthene	207-08-9	1.55E-07	3.21E-07	1.60E-08
Dibenzo(a,h)anthracene	53-70-3	5.83E-07	1.21E-06	6.03E-08
Chrysene	218-01-9	3.53E-07	7.31E-07	3.65E-08
Indeno(1,2,3,-cd)pyrene	193-39-5	3.75E-07	7.76E-07	3.88E-08
Benzo(a)pyrene	50-32-8	1.88E-07	3.89E-07	1.95E-08
Other-PAH (exclude 7-PAH)	Total other PAH		1.65E-04	8.26E-06
Acenaphthene	83-32-9	1.42E-06	2.94E-06	1.47E-07
Acenaphthylene	208-96-8	5.06E-06	1.05E-05	5.24E-07
Fluorene	86-73-7	2.92E-05	6.04E-05	3.02E-06
Phenanthrene	85-01-8	2.94E-05	6.09E-05	3.04E-06
Anthracene	120-12-7	1.87E-06	3.87E-06	1.94E-07
Fluoranthene	206-44-0	7.61E-06	1.58E-05	7.88E-07
Pyrene	129-00-0	4.78E-06	9.89E-06	4.95E-07
Benzo(g,h,i)perylene	191-24-2	4.89E-07	1.01E-06	5.06E-08
TAP Totals			**8.02E-03**	**4.01E-04**

GHG Emissions

	(kg/MMBtu)	lb/hr	tpy
CO_2	73.96	338	17
CH_4	1.00E-02	0.05	0.002
N_2O	6.00E-04	0.003	0.000
CO_2e			17

Notes

(1) Criteria pollutant emission factors from manufacturer data except SO2

SO2 calculated using sulfur content of fuel (fuel sulfur content * fuel consumption * density of fuel *2 lb SO2/lbS)

HAP/TAP emission factors from AP-42, Table 3.3-2

GHG emission factors from Climate Registry 2014 Default EF

(2) Planned usage is was assumed to be 500 hours for emergency use.

Gayle Manufacturing Company GMC-A

Emergency Engine Emissions

	Emission Factor[1]	Bay 5	
Model		Kohler 60REZGB	
Number of Units		1	
Fuel Consumption (cfh)		790	
Natural Gas Heat Content (Btu/cf)		1,020	
Power Rating (kW)		60	
Heat Input (MMBtu/hr)		0.81	
Annual Hours of Operations (hrs/yr)[2]		100	
Criteria Pollutants	**(lb/MMBtu)**	**lb/hr**	**tpy**
NO_x	2.21	1.78	8.90E-02
CO	3.72	3.00	1.50E-01
	(lb/MMBtu)	**lb/hr**	**tpy**
PM[3]	1.94E-02	1.56E-02	7.82E-04
VOC	2.96E-02	2.39E-02	1.19E-03
SO_2	5.88E-04	4.74E-04	2.37E-05

HAP Emissions	CAS	(lb/MMBtu)	lb/hr	tpy
1,1,2,2-Tetrachloroethane	79-34-5	2.53E-05	2.04E-05	1.02E-06
1,1,2-Trichloroethane	79-00-5	1.53E-05	1.23E-05	6.16E-07
1,1-Dichloroethane	75-34-3	1.13E-05	9.11E-06	4.55E-07
1,2-Dichloroethane	107-06-2	1.13E-05	9.11E-06	4.55E-07
1,2-Dichloropropane	78-87-5	1.30E-05	1.05E-05	5.24E-07
1,3-Butadiene	106-99-0	6.63E-04	5.34E-04	2.67E-05
1,3-Dichloropropene	542-75-6	1.27E-05	1.02E-05	5.12E-07
Acetaldehyde	75-07-0	2.79E-03	2.25E-03	1.12E-04
Acrolein	107-02-8	2.63E-03	2.12E-03	1.06E-04
Benzene	71-43-2	1.58E-03	1.27E-03	6.37E-05
Butyr/isobutyraldehyde	123-72-8	4.86E-05	3.92E-05	1.96E-06
Carbon Tetrachloride	56-23-5	1.77E-05	1.43E-05	7.13E-07
Chlorobenzene	108-90-7	1.29E-05	1.04E-05	5.20E-07
Chloroform	67-66-3	1.37E-05	1.10E-05	5.52E-07
Ethane	74-84-0	7.04E-02	5.67E-02	2.84E-03
Ethylbenzene	100-41-4	2.48E-05	2.00E-05	9.99E-07
Ethylene Dibromide	106-93-4	2.13E-05	1.72E-05	8.58E-07
Formaldehyde	50-00-0	2.05E-02	1.65E-02	8.26E-04
Methanol	67-56-1	3.06E-03	2.47E-03	1.23E-04
Methylene Chloride	75-09-2	4.12E-05	3.32E-05	1.66E-06
Naphthalene	91-20-3	9.71E-05	7.82E-05	3.91E-06
PAH	Total 7-PAH	1.41E-04	1.14E-04	5.68E-06
Styrene	100-42-5	1.19E-05	9.59E-06	4.79E-07
Toluene	108-88-3	5.58E-04	4.50E-04	2.25E-05
Vinyl Chloride	75-01-4	7.18E-06	5.79E-06	2.89E-07
Xylene	1330-20-7	1.95E-04	1.57E-04	7.86E-06
TAP Totals			**6.25E-03**	**3.12E-04**

GHG Emissions	(kg/MMBtu)	lb/hr	tpy
CO_2	53.06	94	4.7
CH_4	1.00E-03	0.0018	0.0001
N_2O	1.00E-04	0.0002	0.00001
CO_2e			4.7

Notes

(1) Criteria pollutant emission factors from manufacturer data for NOx and CO. PM, SO2, and VOC emission factors are from AP42, Table 3.2-3 for uncontrolle
HAP/TAP emission factors from AP-42, Table 3.2-3 for uncontrolled rich burn engine. PAH was assumed to be the total 7-PAH group to be conservative
GHG emission factors from Climate Registry 2014 Default Emission Factors, Table 12.1 and 12.9.

(2) Planned usage is assumed to be 100 hours for emergency use.

Gayle Manufacturing Company GMC-A

Nat Gas Emergency Generator Emissions (Assumed to be Rich-Burn Engine)

	Emission Factor[1]	Office	
Model		Kohler KG40	
Number of Units		1	
Fuel Consumption (cfh)		730	
Natural Gas Heat Content (Btu/cf)		1,020	
Power Rating (kW)		72.5	
Heat Input (MMBtu/hr)		0.74	
Annual Hours of Operations (hrs/yr)[2]		100	
Criteria Pollutants	**(g/kW-hr)**	**lb/hr**	**tpy**
NO_x	7.162	1.14	5.72E-02
CO	19.98	3.19	1.60E-01
	(lb/MMBtu)	**lb/hr**	**tpy**
PM[3]	1.94E-02	1.45E-02	7.23E-04
VOC	2.96E-02	2.20E-02	1.10E-03
SO_2	5.88E-04	4.38E-04	2.19E-05

HAP Emissions	CAS	(lb/MMBtu)	lb/hr	tpy
1,1,2,2-Tetrachloroethane	79-34-5	2.53E-05	1.88E-05	9.42E-07
1,1,2-Trichloroethane	79-00-5	1.53E-05	1.14E-05	5.70E-07
1,1-Dichloroethane	75-34-3	1.13E-05	8.41E-06	4.21E-07
1,2-Dichloroethane	107-06-2	1.13E-05	8.41E-06	4.21E-07
1,2-Dichloropropane	78-87-5	1.30E-05	9.68E-06	4.84E-07
1,3-Butadiene	106-99-0	6.63E-04	4.94E-04	2.47E-05
1,3-Dichloropropene	542-75-6	1.27E-05	9.46E-06	4.73E-07
Acetaldehyde	75-07-0	2.79E-03	2.08E-03	1.04E-04
Acrolein	107-02-8	2.63E-03	1.96E-03	9.79E-05
Benzene	71-43-2	1.58E-03	1.18E-03	5.88E-05
Butyr/isobutyraldehyde	123-72-8	4.86E-05	3.62E-05	1.81E-06
Carbon Tetrachloride	56-23-5	1.77E-05	1.32E-05	6.59E-07
Chlorobenzene	108-90-7	1.29E-05	9.61E-06	4.80E-07
Chloroform	67-66-3	1.37E-05	1.02E-05	5.10E-07
Ethane	74-84-0	7.04E-02	5.24E-02	2.62E-03
Ethylbenzene	100-41-4	2.48E-05	1.85E-05	9.23E-07
Ethylene Dibromide	106-93-4	2.13E-05	1.59E-05	7.93E-07
Formaldehyde	50-00-0	2.05E-02	1.53E-02	7.63E-04
Methanol	67-56-1	3.06E-03	2.28E-03	1.14E-04
Methylene Chloride	75-09-2	4.12E-05	3.07E-05	1.53E-06
Naphthalene	91-20-3	9.71E-05	7.23E-05	3.62E-06
PAH	Total 7-PAH	1.41E-04	1.05E-04	5.25E-06
Styrene	100-42-5	1.19E-05	8.86E-06	4.43E-07
Toluene	108-88-3	5.58E-04	4.15E-04	2.08E-05
Vinyl Chloride	75-01-4	7.18E-06	5.35E-06	2.67E-07
Xylene	1330-20-7	1.95E-04	1.45E-04	7.26E-06
TAP Totals			**5.77E-03**	**2.89E-04**

GHG Emissions	(g/kW-hr)	lb/hr	tpy
CO_2	578.70	92	4.6
GHG Emissions	**(kg/MMBtu)**	lb/hr	tpy
CH_4	1.00E-03	0.0016	0.0001
N_2O	1.00E-04	0.0002	0.00001
CO_2e			4.6

Notes

(1) Criteria pollutant emission factors from Kohler manufacturer data for NOx (as THC+NOx) and CO.
PM, SO2, and VOC emission factors are from AP42, Table 3.2-3 for uncontrolled rich-burn engine.
HAP/TAP emission factors from AP-42, Table 3.2-3 for uncontrolled rich burn engine. PAH was assumed to be the total 7-PAH group to be conservative
GHG emission factors from Climate Registry 2014 Default Emission Factors, Table 12.1 and 12.9, except CO2, provided in the Kohler manufacturer data.
(2) Planned usage is assumed to be a maximum of 500 hours for emergency use.

Gayle Manufacturing Company GMC-A

Welding Emissions -Bay 4

Throughput Weld Wire	2,303,880	lbs
Peak Hour Weld Wire [1]	263	lb/hr
Hours of Operation[2]	7,296	hrs
HEPA filter on fans [3]	99.5%	

PM Emissions

	Uncontrolled			Controlled	
Emissions	EF lb/1000 lb of Electrode[4]	PM (lb/hr)	PM (tpy)	PM (lb/hr)	PM (tpy)
PM	15.1	4.0	17.39	1.99E-02	8.70E-02

Pollutant	Aluminum Including metal & oxides	Barium, soluble compounds, as Ba	Carbon black	Iron salts, soluble, as FE (Carbon Steel Tube)	Fluorides (as F)	Iron salts, soluble, as Fe	Limestone	Magnesite	Magnesium oxide fume	Manganese and/or manganese alloys and compounds (as Mn) Dust or Fume	Kaolin (respirable dust)	Quartz	Silicon and/or silicon alloys and compounds (as Si)	Zirconium alloys and compounds (as Zr)
CAS	7429-90-5	7440-39-3	1333-86-4	7789-75-5	7439-89-6	1317-65-3	546-93-0	1309-48-4	7439-96-5		1332-58-7	14808-60-7	7440-21-3	12004-83-0
Electrode[5]	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Innershield NR-311 (GMC Electrode (1) 7-64	<5	<0.5	<0.5	80	<5	10	1		<5	<0.5		<0.5	<0.5	
Outershield XLH-70 (GMC Electrode (2) 3-32 outershield)				75	0.5	15		0.5	<0.5	<5	0.5	<0.5	1	<0.5
UltraCore 71C (GMC Electrode (3) .045 outs	1			85	<0.5	<5			<0.5	<5	<5	<0.5	0.5	
Maximum	**5**	**0.5**	**0.5**	**85**	**5**	**15**	**1**	**0.5**	**5**	**5**	**5**	**0.5**	**1**	**0.5**

TAP Emissions

		Uncontrolled		Controlled		Idaho TAP Screening Emissions Level
Compounds	CAS	(lb/hr)	(tpy)	(lb/hr)	(tpy)	lb/hr
Aluminum Including metal & oxides	7429-90-5	0.20	0.87	9.93E-04	4.35E-03	0.667
Barium, soluble compounds, as Ba	7440-39-3	0.02	0.09	9.93E-05	4.35E-04	0.033
Carbon black	1333-86-4	0.02	0.09	9.93E-05	4.35E-04	0.23
Iron salts, soluble, as FE (Carbon Steel Tube)	7789-75-5	3.38	14.79	1.69E-02	7.39E-02	0.167
Fluorides (as F)		0.20	0.87	9.93E-04	4.35E-03	0.067
Iron salts, soluble, as Fe	7439-89-6	0.60	2.61	2.98E-03	1.30E-02	0.667
Limestone and/or calcium carbonate	546-93-0	0.04	0.17	1.99E-04	8.70E-04	0.667
Magnesite	1309-48-4	0.20	0.87	9.93E-04	4.35E-03	0.667
Magnesium oxide fume	7439-96-5(f)	0.20	0.87	9.93E-04	4.35E-03	0.333
Manganese and/or manganese alloys and compounds (as Mn) Dust or Fume*	7439-96-5(d)	0.20	0.87	9.93E-04	4.35E-03	0.067
Kaolin (respirable dust)	1332-58-7	0.20	0.87	9.93E-04	4.35E-03	0.133
Quartz	14808-60-7	0.02	0.09	9.93E-05	4.35E-04	0.0067
Silicon and/or silicon alloys and compounds (as Si)	7440-21-3	0.04	0.17	1.99E-04	8.70E-04	0.667
Zirconium alloys and compounds (as Zr)	12004-83-0	0.20	0.87	9.93E-04	4.35E-03	0.333
HAP Totals*			0.87		4.35E-03	

Notes

(1) Based on emails from Jim DeBlasio dated 12/10/2014

(2) Assuming maximum possible operation

(3) Control efficiency for PM, based on email from Rick Glenn dated Jan. 30, 2015.

(4) Emission Factor from AP-42 Table 12.19-1 and 12.19-2. Maximum emission factor of the E70T and E71T types.

(5) Percentages from provided MSDSs

(6) Assume Total PM equals PM10 and PM2.5

Sample Calculation:

Uncontrolled emission rate (lb/hr)=Hourly throughput (lb)/1000 * EF (lb/1000 lb of electrode)

Uncontrolled emission rate (tpy)=annual throughput (lb)/1000 * EF (lb/1000 lb of electrode)

Controlled emission rate = uncontrolled emission rate * (1- control efficiency%)

Gayle Manufacturing Company GMC-A

Abrasive Blasting Emissions

Hours of Operation[1]	7,296	hrs
Residual dust in the exhaust air [2]	1	mg/m3
Residual dust in the exhaust air	0.00000006	lb/cf
Exhaust flow rate	12,000	m3/hr
Exhaust flow rate	423,600	cubic feet per hour

Pollutant[4]	Controlled Emissions	
	lb/hr	tpy
PM	0.026	0.10

Notes

(1) Hours of operation assumed to be 7,296

(2) Based on Manufacturer Spec (Wheelabrator) forAir-Shoc Cartridge Filter Unit.
After secondary filter residual dust is 1.0 mg/m3.

(3) Assume Total PM equals PM10 and PM2.5

Sample Calculation:

Emission rate (tpy) = Residual dust in exhaust air * Exhaust flow rate * 7296 hr/yr * 1 ton/2000 lb

Emission rate (lb/hr) = Residual dust in exhaust air * Exhaust flow rate

TAPs

Pollutant	CAS	Weight Percent[1]	Controlled Emissions	
			lb/hr	tpy
Iron oxide fume	1309-37-1	96%	0.0254	0.0926
Carbon black	1333-86-4	1.20%	0.0003	0.0012
Manganese dust	7439-96-5(d)	1.30%	0.0003	0.0013
Silicon	7440-21-3	1.50%	0.0004	0.0014
Chromium	7440-47-3	0.25%	0.0001	0.0002
Copper	7440-50-8(d)	0.25%	0.0001	0.0002
Nickel	7440-02-0	0.20%	0.0001	0.0002
Total TAPs	--	--	**0.03**	**0.10**

Notes

(1) Percentage of each Idaho TAP listed in IDAPA 58.01.01.585 & 586 from MSDSs provided by client

Sample Calculation:

Emission rate (lb/hr) = PM controlled emission rate (lb/hr) * TAP Weight Percent (%)

Emission rate (tpy) = Emission rate (lb/hr) * hours of operation (hrs) * 1 ton/2000 lb

Gayle Manufacturing Company GMC-A

Plasmarc Cutter Emissions

Kerf Weight (Mild Steel)

Amperage	Plate Thickness	Kerf Width	KERF Volume per Inch Cut	Cut Speeds	Kerf Volume	Kerf Weight Per Cutting Machine	Worst Case Kerf Weight Per Cutting Machine
	Inch	Inch	$inch^3$/inch	Inch/min	$inch^3$/min	lb/hr	lb/hr
	0.25	0.2	0.050	200	10.000	170.4	
	0.5	0.2	0.100	115	11.500	196.0	
	1	0.2	0.200	45	9.000	153.4	
200	2	0.2	0.400	10	4.000	68.2	196.0
	0.375	0.2	0.075	180	13.500	230.0	
	0.75	0.2	0.150	90	13.500	230.0	
260	2.5	0.2	2.500	8	20.000	340.8	340.8
	0.5	0.2	0.100	170	17.000	289.7	
	1	0.2	0.200	85	17.000	289.7	
	2	0.2	0.400	30	12.000	204.5	
400	3	0.2	0.600	10	6.000	102.2	289.7

Note:

1 Plate thickness and cutting speed of each machine were obtained from operating data of Hypertherm HyPerformance Plasma HPR260XD and HPR400XD.

2. Kerf width was estimated to be 0.2 inches (5 mm)

3. Steel density used: 0.284 lb/inch3

PM and TAP Emissions from Fume

			200 AMP (Bay 6)				260 AMP (Bay 6)				400 AMP (Bay 6)				400 AMP (Bay 3)				Total			
Number of Machines			2				2				2				2							
Operating hours			7296				7296				7296				7296							
PM Control Efficiency[3]			99.99%				99.99%				99.99%				99.99%							
		Fumes from Plasmarc Cutting	Uncontrolled emissions		Controlled Emissions		Uncontrolled emissions		Controlled Emissions		Uncontrolled emissions		Controlled Emissions		Uncontrolled emissions		Controlled Emissions		Uncontrolled emissions		Controlled Emissions	
Pollutant[1]	CAS #	% in Plate	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
PM10/PM2.5	NA	100%	19.596	71.486	0.002	0.007	34.080	124.324	0.003	0.012	28.968	105.675	0.003	0.011	28.968	105.675	0.003	0.011	111.612	407.161	0.011	0.041
Chromium*	7440-47-3	0.0%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Copper (fume)	7440-50-8	1.4%	0.274	1.001	0.000	0.000	0.477	1.741	0.000	0.000	0.406	1.479	0.000	0.000	0.406	1.479	0.000	0.000	1.563	5.700	0.000	0.001
Iron	7439-89-6	73.0%	14.305	52.185	0.001	0.005	24.878	90.756	0.002	0.009	21.147	77.143	0.002	0.008	21.147	77.143	0.002	0.008	81.477	297.227	0.008	0.030
Manganese*	7439-96-5(f)	10.0%	1.960	7.149	0.000	0.001	3.408	12.432	0.000	0.001	2.897	10.568	0.000	0.001	2.897	10.568	0.000	0.001	11.161	40.716	0.001	0.004
Nickel*	7440-02-0	0.0%	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
HAP Totals*			1.96	7.15	0.00	0.00	3.41	12.43	0.00	0.00	2.90	10.57	0.00	0.00	2.90	10.57	0.00	0.00	11.16	40.72	0.00	0.004

PM emissions 0.05 lb/lb kerf

1. Source: PM emissions were based on the ratio of emitted fume to the total kerf amount (5%) based on US EPA AP-42, Volume I, Chapter 12: Metallurgical Industry http://www.epa.gov/ttn/chief/efdocs/welding.pdf

2. Percentage of each Idaho TAP fume listed in US EPA Volume I, Chapter 12: Metallurgical industry http://www.epa.gov/ttn/chief/efdocs/welding.pdf

Gayle Manufacturing Company GMC-A

Painting Criteria Emissions

Maximum Throughput[1]	10,000	gal/yr
Maximum Throughput (water based paint)[1]	60	gal/day
Paint Gun Transfer Efficiency[2]	65%	

VOCs

Coating	VOC Content (lb/gal)[3]	VOC Emitted (lb/hr)	VOC Emitted (tpy)
PRO INDUSTRIAL PRO-CRYL UNIVERSAL ACRYLIC PRIMER, GRAY	0.32	1.6	1.6

Notes

(1) Projected based on permitted production levels at GMC-W. Used maximum of the three coatings for PTE.

(2) The Graco Alpha Plus AA and Bink AA4000 Air Assisted Airless Spray Guns have a transfer efficiency ranging from 50-65%

3) VOC content listed in Environmental data sheets provided by client

Sample Calculation:

Emission rate (lb/hr)=Throughput (gal/day) / 24 hr/day * VOC Content (lb/gal)

Emission rate (tpy)=Throughput (gal/yr) * VOC Content (lb/gal) / 2000 lbs/ton

PM

Coating	Solids Content (lb/gal)[1]	PM Emitted (lb/hr)	PM Emitted (tpy)
PRO INDUSTRIAL PRO-CRYL UNIVERSAL ACRYLIC PRIMER, GRAY	0.9	1.6	1.6

Notes

(1) Solids content listed in Environmental data sheets provided by client

All PM is assumed to be PM10 and PM2.5.

Sample Calculation:

Emission rate (lb/hr)=Throughput (gal/day) / 24 hr/day * Solids Content (lb/gal) * (1-transfer efficiency)

Emission rate (tpy)=Throughput (gal/yr) * Solids Content (lb/gal) * (1-transfer efficiency) / 2000 lbs/ton

Gayle Manufacturing Company GMC-A

Emissions Summary

Table 4: New Project PTE Critera Pollutant Summary

Pollutant		New NG Heaters	Office NG Emergency Generator Engine	Total PTE[1]	Below Regulatory Concern (10% of Sig ER) TPY
NOx	lb/hr	7.79E-02	1.14E+00	1.22	
	tpy	2.84E-01	5.72E-02	**0.34**	**4.0**
CO	lb/hr	6.54E-02	3.19E+00	3.26	
	tpy	2.39E-01	1.60E-01	**0.40**	**10.0**
PM10	lb/hr	5.92E-03	1.45E-02	0.02	
	tpy	2.16E-02	7.23E-04	**0.02**	**1.5**
PM2.5	lb/hr	5.92E-03	1.45E-02	0.02	
	tpy	2.16E-02	7.23E-04	**0.02**	**1.0**
SO2	lb/hr	4.67E-04	4.38E-04	0.00	
	tpy	1.70E-03	2.19E-05	**0.002**	**4.0**
Lead	lb/month	1.18E-07	NA	**0.00**	**0.06**
VOC	lb/hr	4.28E-03	2.20E-02	0.03	
	tpy	1.56E-02	1.10E-03	**0.02**	**4.0**
CO2e	tpy	339.20	4.63	343.82	

Notes:

[1] Total PTE assume uncontrolled equals controlled

Gayle Manufacturing Company GMC-A
Emissions Summary

Table 5: New Project PTE TAP Summary

TAPs	CAS	New NG Heaters		Office NG Emergency Engine		Total		IDAPA EL[1]	Exceeds EL
		(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	
1,1,2,2-Tetrachloroethane[a]	79-34-5	NA	NA	1.88E-05	9.42E-07	1.88E-05	9.42E-07		
1,1,2-Trichloroethane[a]	79-00-5	NA	NA	1.14E-05	5.70E-07	1.14E-05	5.70E-07		
1,1-Dichloroethane	75-34-3	NA	NA	8.41E-06	4.21E-07	8.41E-06	4.21E-07	2.70E+01	Below
1,2-Dichloroethane[a]	107-06-2	NA	NA	8.41E-06	4.21E-07	8.41E-06	4.21E-07		
1,2-Dichloropropane	78-87-5	NA	NA	9.68E-06	4.84E-07	9.68E-06	4.84E-07	2.31E+01	Below
1,3-Butadiene[a]	106-99-0	NA	NA	4.94E-04	2.47E-05	4.94E-04	2.47E-05		
1,3-Dichloropropene[a]	542-75-6	NA	NA	9.46E-06	4.73E-07	9.46E-06	4.73E-07		
3-Methylchloranthene	56-49-5	1.40E-09	5.11E-09	NA	NA	1.40E-09	5.11E-09	NA	Below
Acetaldehyde[a]	75-07-0	NA	NA	2.08E-03	1.04E-04	2.08E-03	1.04E-04		
Acrolein[a]	107-02-8	NA	NA	1.96E-03	9.79E-05	1.96E-03	9.79E-05		
Arsenic[a]	7440-38-2	1.56E-07	5.68E-07	NA	NA	1.56E-07	5.68E-07		
Barium	7440-39-3	3.43E-06	1.25E-05	NA	NA	3.43E-06	1.25E-05	3.30E-02	Below
Benzene[a]	71-43-2	1.63E-06	5.96E-06	1.18E-03	5.88E-05	1.18E-03	6.48E-05		
Beryllium*	7440-41-7	9.34E-09	3.41E-08	NA	NA	9.34E-09	3.41E-08	2.80E-05	Below
Cadmium*	7440-43-9	8.56E-07	3.12E-06	NA	NA	8.56E-07	3.12E-06	3.70E-06	Below
Carbon Tetrachloride[a]	56-23-5	NA	NA	1.32E-05	6.59E-07	1.32E-05	6.59E-07		
Chlorobenzene[a]	108-90-7	NA	NA	9.61E-06	4.80E-07	9.61E-06	4.80E-07		
Chloroform[a]	67-66-3	NA	NA	1.02E-05	5.10E-07	1.02E-05	5.10E-07		
Chromium*	7440-47-3	1.09E-06	3.98E-06	NA	NA	1.09E-06	3.98E-06	3.30E-02	Below
Cobalt*	7440-48-4	6.54E-08	2.39E-07	NA	NA	6.54E-08	2.39E-07	3.30E-03	Below
Copper	440-50-8(d)	6.62E-07	2.41E-06	NA	NA	6.62E-07	2.41E-06	1.30E-02	Below
Dichlorobenzene	95-50-1	9.34E-07	3.41E-06	NA	NA	9.34E-07	3.41E-06	2.00E+01	Below
Ethylbenzene[a]	100-41-4	NA	NA	1.85E-05	9.23E-07	1.85E-05	9.23E-07		
Ethylene Dibromide[a]	106-93-4	NA	NA	1.59E-05	7.93E-07	1.59E-05	7.93E-07		
Formaldehyde[a]	50-00-0	5.84E-05	2.13E-04	1.53E-02	7.63E-04	1.53E-02	7.63E-04		
Hexane*	110-54-3	1.40E-03	5.11E-03	NA	NA	1.40E-03	5.11E-03	1.20E+01	Below
Manganese*	439-96-5(d)	2.96E-07	1.08E-06	NA	NA	2.96E-07	1.08E-06	6.70E-02	Below
Methanol[a]	67-56-1	NA	NA	2.28E-03	1.14E-04	2.28E-03	1.14E-04		
Methylene Chloride[a]	75-09-2	NA	NA	3.07E-05	1.53E-06	3.07E-05	1.53E-06		
Molybdenum	7439-98-7	8.56E-07	3.12E-06	NA	NA	8.56E-07	3.12E-06	3.33E-01	Below
Naphthalene[a]	91-20-3	4.75E-07	1.73E-06	7.23E-05	3.62E-06	4.75E-07	1.73E-06		
Nickel*	7440-02-0	1.63E-06	5.96E-06	NA	NA	1.63E-06	5.96E-06	2.70E-05	Below
PAH[a]		2.72E-08	9.94E-08	1.05E-04	5.25E-06	1.05E-04	5.35E-06		
POM or 7-PAH*		8.88E-09	3.24E-08	NA	NA	8.88E-09	3.24E-08	2.00E-06	Below
Pentane	109-66-0	2.02E-03	7.38E-03	NA	NA	2.02E-03	7.38E-03	1.18E+02	Below
Selenium*	7782-49-2	1.87E-08	6.82E-08	NA	NA	1.87E-08	6.82E-08	1.30E-02	Below
Styrene[a]	100-42-5	NA	NA	8.86E-06	4.43E-07	8.86E-06	4.43E-07		
Toluene[a]	108-88-3	2.65E-06	9.66E-06	4.15E-04	2.08E-05	4.18E-04	3.04E-05		
Vanadium	1314-62-1	1.79E-06	6.53E-06	NA	NA	1.79E-06	6.53E-06	3.00E-03	Below
Vinyl Chloride[a]	75-01-4	NA	NA	5.35E-06	2.67E-07	5.35E-06	2.67E-07		
Xylene[a]	1330-20-7	NA	NA	1.45E-04	7.26E-06	1.45E-04	7.26E-06		
Zinc	7440-66-6	2.26E-05	8.24E-05	NA	NA	2.26E-05	8.24E-05	6.67E-01	Below
Total Project HAPs							**0.01**		

Note: Mercury is no longer listed in IDAPA 58.01.01.585/586

[1] IDAPA EL = 58.01.01.585/586 Screening Emission Level

[a] TAP that are HAP emissions are excluded for modeling purposes, per email from Darrin Pampaian, dated July 18, 2017: "It is presumed that EPA evaluated the 187 HAPs when developing the emission standards for new, modified or existing stationary sources regulated by 40 CFR Part 63; therefore, no further review is required under IDAPA 58.01.01.210 for these pollutants for sources subject to 40 CFR Part 63, including sources specifically exempted within the subpart."

TAP that are HAP emissions from the emergency generator can be excluded from the modeling analysis because they will be addressed through 40 CFR Part 63, Subpart ZZZZ-NESHAP for Reciprocating Internal Combustion Engines. The emergency generator engine is required to meet the requirements of 40 CFR 63 Subpart ZZZZ by meeting the requirements of 40 CFR part 60 Subpart JJJ in accordance with 40 CFR 63.6590(c).

* HAPs that are not subject to 40 CFR Part 63 (ie. NG heaters)

Idaho TAP EL

	CAS	TAP?	EL	AACC
			(lb/hr)	(ug/m3)
1,1,2,2-Tetrachloroethane	79-34-5		1.10E-05	1.70E-02
1,1,2-Trichloroethane	79-00-5		4.20E-04	6.20E-02
1,1-Dichloroethane	75-34-3		2.70E+01	
1,2-Dichloroethane	107-06-2		2.67E+00	2.00E+00
1,2-Dichloropropane	78-87-5		2.31E+01	1.74E+01
1,3-Butadiene	106-99-0		2.40E-05	3.60E-03
1,3-Dichloropropene	542-75-6		1.90E-07	2.90E-06
2-Methylnaphthalene	91-57-6	No		
3-Methylchloranthene	56-49-5		2.50E-06	3.70E-04
7,12-Dimethylbenz(a)anthracene	57-97-6	No		
PAH except 7-PAH group	Total Other PAH		9.10E-05	1.40E-02
Acenaphthene	83-32-9	Other PAH		
Acenaphthylene	208-96-8	Other PAH		
Anthracene	120-12-7	Other PAH		
Benzo(g,h,I)perylene	191-24-2	Other PAH		
Chrysene	218-01-9	Other PAH		
Fluoranthene	206-44-0	Other PAH		
Fluorene	86-73-7	Other PAH		
Phenanathrene	85-01-8	Other PAH		
Pyrene	129-00-0	Other PAH		
7-PAH (shown below)	Total 7-PAH		2.00E-06	3.00E-04
Benzo(a)anthracene	56-55-3	7-PAH		
Benzo(a)pyrene	50-32-8	7-PAH		
Benzo(b)fluoranthene	205-99-2	7-PAH		
Benzo(k)fluoranthene	207-08-9	7-PAH		
Dibenzo(a,h)anthracene	53-70-3	7-PAH		
Indeno(1,2,3,-cd)pyrene	193-39-5	7-PAH		
Acetaldehyde	75-07-0		3.00E-03	4.50E-01
Acetone	67-64-1		1.19E+02	8.90E+01
Acrolein	107-02-8		1.70E-02	1.25E-02
Arsenic	7440-38-2		1.50E-06	2.30E-04
Barium	7440-39-3		3.30E-02	2.50E-02
Benzene	71-43-2		8.00E-04	1.20E-01
Beryllium	7440-41-7		2.80E-05	4.20E-03
Butane	106-97-8	No		
Butyr/isobutyraldehyde	123-72-8	No		
Cadmium	7440-43-9		3.70E-06	5.60E-04
Carbon black	1333-86-4		2.30E-01	1.75E-01
Carbon Tetrachloride	56-23-5		4.40E-04	6.70E-02
Chlorobenzene	108-90-7		2.33E+01	1.75E+01
Chloroform	67-66-3		2.80E-04	4.30E-02
Chromium	7440-47-3		3.30E-02	2.50E-02
Chromium VI	18540-58-9		5.60E-07	8.30E-05
Cobalt	7440-48-4		3.30E-03	2.50E-03
Copper (fume)	7440-50-8(f)		1.30E-02	1.00E-02
Copper (dust, mist)	7440-50-8(d)		6.70E-02	5.00E-02
Dichlorobenzene	95-50-1		2.00E+01	1.50E+01
Ethane	74-84-0	No		
Ethylbenzene	100-41-4		2.90E+01	2.18E+01
Ethylene Dibromide	106-93-4		3.00E-05	4.50E-03
Formaldehyde	50-00-0		5.10E-04	7.70E-02
Hexane	110-54-3		1.20E+01	9.00E+00
Iron salts, soluble as Fe	7439-89-6		6.70E-02	5.00E-02
Iron oxide fume	1309-37-1		3.33E-01	2.50E-01
Lead	7439-92-1	No		
Manganese dust	7439-96-5(d)		3.33E-01	2.50E-01
Manganese fume	7439-96-5(f)		6.70E-02	5.00E-02
Mercury	7439-97-6	No		
Methanol	67-56-1		1.73E+01	1.30E+01
Methylene Chloride	75-09-2		1.60E-03	2.40E-01
Molybdenum	7439-98-7		3.33E-01	2.50E-01
Naphthalene	91-20-3		3.33E+00	2.50E+00
Nickel	7440-02-0		2.70E-05	4.20E-03
Pentane	109-66-0		1.18E+02	8.85E+01
Propane	74-98-6	No		
Quartz	14808-60-7		6.70E-03	5.00E-03
Selenium	7782-49-2		1.30E-02	1.00E-02
Silicon	7440-21-3		6.67E-01	5.00E-01
Styrene	100-42-5		6.67E+00	1.00E+00
Toluene	108-88-3		2.50E+01	1.88E+01
Vanadium	1314-62-1		3.00E-03	2.50E-03
Vinyl Chloride	75-01-4		9.40E-04	1.40E-01
Xylene	1330-20-7		2.90E+01	2.18E+01
Zinc	7440-66-6		6.67E-01	5.00E-01

Gayle Manufacturing Company GMC-A

Natural Gas Heater Emissions, Makeup Air Unit Emissions, and Rooftop Units

Natural Gas Heating Value (BTU/scf) 1,020

		Bay 5 - HVAC		Office - Roof Top Unit		Office - Roof Top Unit		Total	
Model		Greenheck MAU-1		RTU-1		RTU-2			
Number of Units		1		1		1			
Heat Input (MMBTU/hr)		0.2441		0.31		0.24			
Natural Gas Usage (scf/hr)		239		304		235			
Natural Gas Usage (10^6scf/hr)		0.00024		0.00030		0.00024			
Annual Hours of Operations (hrs/yr)[2]		7,296		7,296		7,296			
Criteria Pollutants	**Emission Factor[1]**								
	(lb/10^6scf)	**lb/hr**	**tpy**	**lb/hr**	**tpy**	**lb/hr**	**tpy**	**lb/hr**	**tpy**
NO_x	100	2.39E-02	8.73E-02	3.04E-02	1.11E-01	2.35E-02	8.58E-02	7.79E-02	2.84E-01
CO	84	2.01E-02	7.33E-02	2.55E-02	9.31E-02	1.98E-02	7.21E-02	6.54E-02	2.39E-01
PM[3]	7.6	1.82E-03	6.63E-03	2.31E-03	8.43E-03	1.79E-03	6.52E-03	5.92E-03	2.16E-02
SO_2	0.6	1.44E-04	5.24E-04	1.82E-04	6.65E-04	1.41E-04	5.15E-04	4.67E-04	1.70E-03
VOC	5.5	1.32E-03	4.80E-03	1.67E-03	6.10E-03	1.29E-03	4.72E-03	4.28E-03	1.56E-02
HAP Emissions									
	(lb/10^6scf)	**lb/hr**	**tpy**	**lb/hr**	**tpy**	**lb/hr**	**tpy**	**lb/hr**	**tpy**
2-Methylnaphthalene	2.40E-05	5.74E-09	2.10E-08	7.29E-09	2.66E-08	5.65E-09	2.06E-08	1.87E-08	6.82E-08
3-Methylchloranthene	1.80E-06	4.31E-10	1.57E-09	5.47E-10	2.00E-09	4.24E-10	1.55E-09	1.40E-09	5.11E-09
7,12-Dimethylbenz(a)anthracene	1.60E-05	3.83E-09	1.40E-08	4.86E-09	1.77E-08	3.76E-09	1.37E-08	1.25E-08	4.54E-08
7-PAH group		2.73E-09	9.95E-09	3.46E-09	1.26E-08	2.68E-09	9.79E-09	8.88E-09	3.24E-08
Benza(a)anthracene	1.80E-06	4.31E-10	1.57E-09	5.47E-10	2.00E-09	4.24E-10	1.55E-09	1.40E-09	5.11E-09
Benzo(b)fluoranthene	1.80E-06	4.31E-10	1.57E-09	5.47E-10	2.00E-09	4.24E-10	1.55E-09	1.40E-09	5.11E-09
Benzo(k)fluoranthene	1.80E-06	4.31E-10	1.57E-09	5.47E-10	2.00E-09	4.24E-10	1.55E-09	1.40E-09	5.11E-09
Dibenzo(a,h)anthracene	1.20E-06	2.87E-10	1.05E-09	3.65E-10	1.33E-09	2.82E-10	1.03E-09	9.34E-10	3.41E-09
Chrysene	1.80E-06	4.31E-10	1.57E-09	5.47E-10	2.00E-09	4.24E-10	1.55E-09	1.40E-09	5.11E-09
Indeno(1,2,3-cd)pyrene	1.80E-06	4.31E-10	1.57E-09	5.47E-10	2.00E-09	4.24E-10	1.55E-09	1.40E-09	5.11E-09
Benzo(a)pyrene	1.20E-06	2.87E-10	1.05E-09	3.65E-10	1.33E-09	2.82E-10	1.03E-09	9.34E-10	3.41E-09
Other-PAH (exclude 7-PAH)		8.38E-09	3.06E-08	1.06E-08	3.88E-08	8.24E-09	3.00E-08	2.72E-08	9.94E-08
Acenaphthene	1.80E-06	4.31E-10	1.57E-09	5.47E-10	2.00E-09	4.24E-10	1.55E-09	1.40E-09	5.11E-09
Acenaphthylene	1.80E-06	4.31E-10	1.57E-09	5.47E-10	2.00E-09	4.24E-10	1.55E-09	1.40E-09	5.11E-09
Anthracene	2.40E-06	5.74E-10	2.10E-09	7.29E-10	2.66E-09	5.65E-10	2.06E-09	1.87E-09	6.82E-09
Fluoranthene	3.00E-06	7.18E-10	2.62E-09	9.12E-10	3.33E-09	7.06E-10	2.58E-09	2.34E-09	8.52E-09
Fluorene	2.80E-06	6.70E-10	2.44E-09	8.51E-10	3.10E-09	6.59E-10	2.40E-09	2.18E-09	7.95E-09
Phenanathrene	1.70E-05	4.07E-09	1.48E-08	5.17E-09	1.88E-08	4.00E-09	1.46E-08	1.32E-08	4.83E-08
Pyrene	5.00E-06	1.20E-09	4.37E-09	1.52E-09	5.54E-09	1.18E-09	4.29E-09	3.89E-09	1.42E-08
Benzo(g,h,i)perylene	1.20E-06	2.87E-10	1.05E-09	3.65E-10	1.33E-09	2.82E-10	1.03E-09	9.34E-10	3.41E-09
Benzene	2.10E-03	5.03E-07	1.83E-06	6.38E-07	2.33E-06	4.94E-07	1.80E-06	1.63E-06	5.96E-06
Butane	2.10E+00	5.03E-04	1.83E-03	6.38E-04	2.33E-03	4.94E-04	1.80E-03	1.63E-03	5.96E-03
Dichlorobenzene	1.20E-03	2.87E-07	1.05E-06	3.65E-07	1.33E-06	2.82E-07	1.03E-06	9.34E-07	3.41E-06
Ethane	3.10E+00	7.42E-04	2.71E-03	9.42E-04	3.44E-03	7.29E-04	2.66E-03	2.41E-03	8.80E-03
Formaldehyde	7.50E-02	1.79E-05	6.55E-05	2.28E-05	8.32E-05	1.76E-05	6.44E-05	5.84E-05	2.13E-04
Hexane	1.80E+00	4.31E-04	1.57E-03	5.47E-04	2.00E-03	4.24E-04	1.55E-03	1.40E-03	5.11E-03
Naphthalene	6.10E-04	1.46E-07	5.33E-07	1.85E-07	6.76E-07	1.44E-07	5.24E-07	4.75E-07	1.73E-06
Pentane	2.60E+00	6.22E-04	2.27E-03	7.90E-04	2.88E-03	6.12E-04	2.23E-03	2.02E-03	7.38E-03
Propane	1.60E+00	3.83E-04	1.40E-03	4.86E-04	1.77E-03	3.76E-04	1.37E-03	1.25E-03	4.54E-03
Toluene	3.40E-03	8.14E-07	2.97E-06	1.03E-06	3.77E-06	8.00E-07	2.92E-06	2.65E-06	9.66E-06
Arsenic	2.00E-04	4.79E-08	1.75E-07	6.08E-08	2.22E-07	4.71E-08	1.72E-07	1.56E-07	5.68E-07
Barium	4.40E-03	1.05E-06	3.84E-06	1.34E-06	4.88E-06	1.04E-06	3.78E-06	3.43E-06	1.25E-05
Beryllium	1.20E-05	2.87E-09	1.05E-08	3.65E-09	1.33E-08	2.82E-09	1.03E-08	9.34E-09	3.41E-08
Cadmium	1.10E-03	2.63E-07	9.60E-07	3.34E-07	1.22E-06	2.59E-07	9.44E-07	8.56E-07	3.12E-06
Chromium	1.40E-03	3.35E-07	1.22E-06	4.25E-07	1.55E-06	3.29E-07	1.20E-06	1.09E-06	3.98E-06
Cobalt	8.40E-05	2.01E-08	7.33E-08	2.55E-08	9.31E-08	1.98E-08	7.21E-08	6.54E-08	2.39E-07
Copper	8.50E-04	2.03E-07	7.42E-07	2.58E-07	9.42E-07	2.00E-07	7.30E-07	6.62E-07	2.41E-06
Manganese	3.80E-04	9.09E-08	3.32E-07	1.15E-07	4.21E-07	8.94E-08	3.26E-07	2.96E-07	1.08E-06
Mercury	2.60E-04	6.22E-08	2.27E-07	7.90E-08	2.88E-07	6.12E-08	2.23E-07	2.02E-07	7.38E-07
Molybdenum	1.10E-03	2.63E-07	9.60E-07	3.34E-07	1.22E-06	2.59E-07	9.44E-07	8.56E-07	3.12E-06
Nickel	2.10E-03	5.03E-07	1.83E-06	6.38E-07	2.33E-06	4.94E-07	1.80E-06	1.63E-06	5.96E-06
Selenium	2.40E-05	5.74E-09	2.10E-08	7.29E-09	2.66E-08	5.65E-09	2.06E-08	1.87E-08	6.82E-08
Vanadium	2.30E-03	5.50E-07	2.01E-06	6.99E-07	2.55E-06	5.41E-07	1.97E-06	1.79E-06	6.53E-06
Zinc	2.90E-02	6.94E-06	2.53E-05	8.81E-06	3.22E-05	6.82E-06	2.49E-05	2.26E-05	8.24E-05
Lead	0.0005	1.20E-07	4.37E-07	1.52E-07	5.54E-07	1.18E-07	4.29E-07	3.89E-07	1.42E-06
TAP Totals		2.71E-03	9.89E-03	3.44E-03	1.26E-02	2.66E-03	9.72E-03	8.82E-03	3.22E-02

GHG Emissions									
	kg/MMBtu[4]	**lb/hr**	**tpy**	**lb/hr**	**tpy**	**lb/hr**	**tpy**	**lb/hr**	**tpy**
CO_2	53.06	29	104	36	132	28	102	9.29E+01	339
CH_4	1.00E-03	0.00	0.002	0.00	0.002	0.00	0.002	1.75E-03	0
N_2O	1.00E-04	0.00	0.000	0.00	0.000	0.00	0.000	1.75E-04	0
CO_2e			104		132		103		339

Notes

(1) Emission Factors from AP-42, Tables 1.4-1, 1.4-2, 1.4-3 and 1.4-4 (July 1998)

(2) Assume 24 hour/day operation, 6 days per week, 52 weeks per year minus 6 holidays

(3) Assume Total PM equals PM10 and PM2.5

(4) GHG emission factors from Climate Registry 2014 Default Emission Factors, Table 12.1 and 12.9.

Gayle Manufacturing Company GMC-A

Nat Gas Emergency Generator Emissions (Assumed to be Rich-Burn Engine)

	Emission Factor[1]	Office	
Model		Kohler KG40	
Number of Units		1	
Fuel Consumption (cfh)		730	
Natural Gas Heat Content (Btu/cf)		1,020	
Power Rating (kW)		72.5	
Heat Input (MMBtu/hr)		0.74	
Annual Hours of Operations (hrs/yr)[2]		100	
Criteria Pollutants	**(g/kW-hr)**	**lb/hr**	**tpy**
NO_X	7.162	1.14	5.72E-02
CO	19.98	3.19	1.60E-01
	(lb/MMBtu)	**lb/hr**	**tpy**
PM[3]	1.94E-02	1.45E-02	7.23E-04
VOC	2.96E-02	2.20E-02	1.10E-03
SO_2	5.88E-04	4.38E-04	2.19E-05

HAP Emissions	**CAS**	**(lb/MMBtu)**	**lb/hr**	**tpy**
1,1,2,2-Tetrachloroethane	79-34-5	2.53E-05	1.88E-05	9.42E-07
1,1,2-Trichloroethane	79-00-5	1.53E-05	1.14E-05	5.70E-07
1,1-Dichloroethane	75-34-3	1.13E-05	8.41E-06	4.21E-07
1,2-Dichloroethane	107-06-2	1.13E-05	8.41E-06	4.21E-07
1,2-Dichloropropane	78-87-5	1.30E-05	9.68E-06	4.84E-07
1,3-Butadiene	106-99-0	6.63E-04	4.94E-04	2.47E-05
1,3-Dichloropropene	542-75-6	1.27E-05	9.46E-06	4.73E-07
Acetaldehyde	75-07-0	2.79E-03	2.08E-03	1.04E-04
Acrolein	107-02-8	2.63E-03	1.96E-03	9.79E-05
Benzene	71-43-2	1.58E-03	1.18E-03	5.88E-05
Butyr/isobutyraldehyde	123-72-8	4.86E-05	3.62E-05	1.81E-06
Carbon Tetrachloride	56-23-5	1.77E-05	1.32E-05	6.59E-07
Chlorobenzene	108-90-7	1.29E-05	9.61E-06	4.80E-07
Chloroform	67-66-3	1.37E-05	1.02E-05	5.10E-07
Ethane	74-84-0	7.04E-02	5.24E-02	2.62E-03
Ethylbenzene	100-41-4	2.48E-05	1.85E-05	9.23E-07
Ethylene Dibromide	106-93-4	2.13E-05	1.59E-05	7.93E-07
Formaldehyde	50-00-0	2.05E-02	1.53E-02	7.63E-04
Methanol	67-56-1	3.06E-03	2.28E-03	1.14E-04
Methylene Chloride	75-09-2	4.12E-05	3.07E-05	1.53E-06
Naphthalene	91-20-3	9.71E-05	7.23E-05	3.62E-06
PAH		1.41E-04	1.05E-04	5.25E-06
Styrene	100-42-5	1.19E-05	8.86E-06	4.43E-07
Toluene	108-88-3	5.58E-04	4.15E-04	2.08E-05
Vinyl Chloride	75-01-4	7.18E-06	5.35E-06	2.67E-07
Xylene	1330-20-7	1.95E-04	1.45E-04	7.26E-06
TAP Totals			**5.77E-03**	**2.89E-04**

GHG Emissions	**(g/kW-hr)**	lb/hr	tpy
CO_2	578.70	92	4.6
GHG Emissions	**(kg/MMBtu)**	lb/hr	tpy
CH_4	1.00E-03	0.0016	0.0001
N_2O	1.00E-04	0.0002	0.00001
CO_2e			4.6

Notes

(1) Criteria pollutant emission factors from Kohler manufacturer data for NOx (as THC+NOx) and CO.
PM, SO2, and VOC emission factors are from AP42, Table 3.2-3 for uncontrolled rich-burn engine.
HAP/TAP emission factors from AP-42, Table 3.2-3 for uncontrolled rich burn engine. PAH was assumed to be the total 7-PAH group to be conservative
GHG emission factors from Climate Registry 2014 Default Emission Factors, Table 12.1 and 12.9, except CO2, provided in the Kohler manufacturer data.
(2) PTE is based on 100 hr/yr for maintenance and testing per 40 CFR 60 Subpart JJJJ

APPENDIX B – FEDERAL REGULATION ANALYSIS

Electronic Code of Federal Regulations
e-CFR data is current as of October 16, 2019

Subpart ZZZZ—National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

SOURCE: 69 FR 33506, June 15, 2004, unless otherwise noted.

WHAT THIS SUBPART COVERS

§63.6580 What is the purpose of subpart ZZZZ?

Subpart ZZZZ establishes national emission limitations and operating limitations for hazardous air pollutants (HAP) emitted from stationary reciprocating internal combustion engines (RICE) located at major and area sources of HAP emissions. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limitations and operating limitations.

[73 FR 3603, Jan. 18, 2008]

§63.6585 Am I subject to this subpart?

You are subject to this subpart if you own or operate a stationary RICE at a major or area source of HAP emissions, except if the stationary RICE is being tested at a stationary RICE test cell/stand.

(a) A stationary RICE is any internal combustion engine which uses reciprocating motion to convert heat energy into mechanical work and which is not mobile. Stationary RICE differ from mobile RICE in that a stationary RICE is not a non-road engine as defined at 40 CFR 1068.30, and is not used to propel a motor vehicle or a vehicle used solely for competition.

(b) A major source of HAP emissions is a plant site that emits or has the potential to emit any single HAP at a rate of 10 tons (9.07 megagrams) or more per year or any combination of HAP at a rate of 25 tons (22.68 megagrams) or more per year, except that for oil and gas production facilities, a major source of HAP emissions is determined for each surface site.

(c) An area source of HAP emissions is a source that is not a major source.

(d) If you are an owner or operator of an area source subject to this subpart, your status as an entity subject to a standard or other requirements under this subpart does not subject you to the obligation to obtain a permit under 40 CFR part 70 or 71, provided you are not required to obtain a permit under 40 CFR 70.3(a) or 40 CFR 71.3(a) for a reason other than your status as an area source under this subpart. Notwithstanding the previous sentence, you must continue to comply with the provisions of this subpart as applicable.

(e) If you are an owner or operator of a stationary RICE used for national security purposes, you may be eligible to request an exemption from the requirements of this subpart as described in 40 CFR part 1068, subpart C.

(f) The emergency stationary RICE listed in paragraphs (f)(1) through (3) of this section are not subject to this subpart. The stationary RICE must meet the definition of an emergency stationary RICE in §63.6675, which includes operating according to the provisions specified in §63.6640(f).

(1) Existing residential emergency stationary RICE located at an area source of HAP emissions that do not operate or are not contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii) and that do not operate for the purpose specified in §63.6640(f)(4)(ii).

(2) Existing commercial emergency stationary RICE located at an area source of HAP emissions that do not operate or are not contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii) and that do not operate for the purpose specified in §63.6640(f)(4)(ii).

(3) Existing institutional emergency stationary RICE located at an area source of HAP emissions that do not operate or are not contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii) and that do not operate for the purpose specified in §63.6640(f)(4)(ii).

[69 FR 33506, June 15, 2004, as amended at 73 FR 3603, Jan. 18, 2008; 78 FR 6700, Jan. 30, 2013]

§63.6590 What parts of my plant does this subpart cover?

This subpart applies to each affected source.

(a) *Affected source.* An affected source is any existing, new, or reconstructed stationary RICE located at a major or area source of HAP emissions, excluding stationary RICE being tested at a stationary RICE test cell/stand.

(1) *Existing stationary RICE.*

(i) For stationary RICE with a site rating of more than 500 brake horsepower (HP) located at a major source of HAP emissions, a stationary RICE is existing if you commenced construction or reconstruction of the stationary RICE before December 19, 2002.

(ii) For stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions, a stationary RICE is existing if you commenced construction or reconstruction of the stationary RICE before June 12, 2006.

(iii) For stationary RICE located at an area source of HAP emissions, a stationary RICE is existing if you commenced construction or reconstruction of the stationary RICE before June 12, 2006.

(iv) A change in ownership of an existing stationary RICE does not make that stationary RICE a new or reconstructed stationary RICE.

(2) *New stationary RICE*. (i) A stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions is new if you commenced construction of the stationary RICE on or after December 19, 2002.

(ii) A stationary RICE with a site rating of equal to or less than 500 brake HP located at a major source of HAP emissions is new if you commenced construction of the stationary RICE on or after June 12, 2006.

(iii) A stationary RICE located at an area source of HAP emissions is new if you commenced construction of the stationary RICE on or after June 12, 2006.

(3) *Reconstructed stationary RICE*. (i) A stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions is reconstructed if you meet the definition of reconstruction in §63.2 and reconstruction is commenced on or after December 19, 2002.

(ii) A stationary RICE with a site rating of equal to or less than 500 brake HP located at a major source of HAP emissions is reconstructed if you meet the definition of reconstruction in §63.2 and reconstruction is commenced on or after June 12, 2006.

(iii) A stationary RICE located at an area source of HAP emissions is reconstructed if you meet the definition of reconstruction in §63.2 and reconstruction is commenced on or after June 12, 2006.

(b) *Stationary RICE subject to limited requirements.* (1) An affected source which meets either of the criteria in paragraphs (b)(1)(i) through (ii) of this section does not have to meet the requirements of this subpart and of subpart A of this part except for the initial notification requirements of §63.6645(f).

(i) The stationary RICE is a new or reconstructed emergency stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions that does not operate or is not contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii).

(ii) The stationary RICE is a new or reconstructed limited use stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions.

(2) A new or reconstructed stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions which combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis must meet the initial notification requirements of §63.6645(f) and the requirements of §§63.6625(c), 63.6650(g), and 63.6655(c). These stationary RICE do not have to meet the emission limitations and operating limitations of this subpart.

(3) The following stationary RICE do not have to meet the requirements of this subpart and of subpart A of this part, including initial notification requirements:

(i) Existing spark ignition 2 stroke lean burn (2SLB) stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions;

(ii) Existing spark ignition 4 stroke lean burn (4SLB) stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions;

(iii) Existing emergency stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions that does not operate or is not contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii).

(iv) Existing limited use stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions;

(v) Existing stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions that combusts landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis;

(c) *Stationary RICE subject to Regulations under 40 CFR Part 60.* An affected source that meets any of the criteria in paragraphs (c)(1) through (7) of this section must meet the requirements of this part by meeting the requirements of 40 CFR part 60 subpart IIII, for compression ignition engines or 40 CFR part 60 subpart JJJJ, for spark ignition engines. No further requirements apply for such engines under this part.

(1) A new or reconstructed stationary RICE located at an area source;

(2) A new or reconstructed 2SLB stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions;

(3) A new or reconstructed 4SLB stationary RICE with a site rating of less than 250 brake HP located at a major source of HAP emissions;

(4) A new or reconstructed spark ignition 4 stroke rich burn (4SRB) stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions;

(5) A new or reconstructed stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions which combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis;

(6) A new or reconstructed emergency or limited use stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions;

(7) A new or reconstructed compression ignition (CI) stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions.

[69 FR 33506, June 15, 2004, as amended at 73 FR 3604, Jan. 18, 2008; 75 FR 9674, Mar. 3, 2010; 75 FR 37733, June 30, 2010; 75 FR 51588, Aug. 20, 2010; 78 FR 6700, Jan. 30, 2013]

The new Kohler emergency engine (97.9 hp) for the new office building is new stationary RICE located at an area source and is subject to 40 CFR 60 Subpart JJJJ. Therefore, no other requirements under this part apply to the new Kohler emergency engine.

Kohler natural gas emergency generators (97.9 HP) engine for the new office building is subject to requirements in this subpart that are highlighted.

Electronic Code of Federal Regulations

e-CFR data is current as of October 4, 2019

40 CFR Subpart JJJJ—Standards of Performance for Stationary Spark Ignition Internal Combustion Engines

SOURCE: 73 FR 3591, Jan. 18, 2008, unless otherwise noted.

WHAT THIS SUBPART COVERS

§60.4230 Am I subject to this subpart?

(a) The provisions of this subpart are applicable to manufacturers, owners, and operators of stationary spark ignition (SI) internal combustion engines (ICE) as specified in paragraphs (a)(1) through (6) of this section. For the purposes of this subpart, the date that construction commences is the date the engine is ordered by the owner or operator.

(1) Manufacturers of stationary SI ICE with a maximum engine power less than or equal to 19 kilowatt (KW) (25 horsepower (HP)) that are manufactured on or after July 1, 2008.

(2) Manufacturers of stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) that are ıe fueled or that are rich burn engines fueled by liquefied petroleum gas (LPG), where the date of manufacture is:

(i) On or after July 1, 2008; or

(ii) On or after January 1, 2009, for emergency engines.

(3) Manufacturers of stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) that are not gasoline fueled and are not rich burn engines fueled by LPG, where the manufacturer participates in the voluntary manufacturer certification program described in this subpart and where the date of manufacture is:

(i) On or after July 1, 2007, for engines with a maximum engine power greater than or equal to 500 HP (except lean burn engines with a maximum engine power greater than or equal to 500 HP and less than 1,350 HP);

(ii) On or after January 1, 2008, for lean burn engines with a maximum engine power greater than or equal to 500 HP and less than 1,350 HP;

(iii) On or after July 1, 2008, for engines with a maximum engine power less than 500 HP; or

(iv) On or after January 1, 2009, for emergency engines.

(4) Owners and operators of stationary SI ICE that commence construction after June 12, 2006, where the stationary SI ICE are manufactured:

(i) On or after July 1, 2007, for engines with a maximum engine power greater than or equal to 500 HP (except lean burn engines with a maximum engine power greater than or equal to 500 HP and less than 1,350 HP);

(ii) on or after January 1, 2008, for lean burn engines with a maximum engine power greater than or equal to 500 HP and less than 1,350 HP;

(iii) on or after July 1, 2008, for engines with a maximum engine power less than 500 HP; or

(iv) on or after January 1, 2009, for emergency engines with a maximum engine power greater than 19 KW (25 HP).

(5) Owners and operators of stationary SI ICE that are modified or reconstructed after June 12, 2006, and any person that modifies or reconstructs any stationary SI ICE after June 12, 2006.

(6) The provisions of §60.4236 of this subpart are applicable to all owners and operators of stationary SI ICE that commence construction after June 12, 2006.

(b) The provisions of this subpart are not applicable to stationary SI ICE being tested at an engine test cell/stand.

(c) If you are an owner or operator of an area source subject to this subpart, you are exempt from the obligation to obtain a permit under 40 CFR part 70 or 40 CFR part 71, provided you are not required to obtain a permit under 40 CFR 70.3(a) or 40 CFR 71.3(a) for a reason other than your status as an area source under this subpart. Notwithstanding the previous sentence, you must continue to comply with the provisions of this subpart as applicable.

(d) For the purposes of this subpart, stationary SI ICE using alcohol-based fuels are considered gasoline engines.

(e) Stationary SI ICE may be eligible for exemption from the requirements of this subpart as described in 40 CFR part 1068, subpart C (or the exemptions described in 40 CFR parts 90 and 1048, for engines that would need to be certified to standards in those parts), except that owners and operators, as well as manufacturers, may be eligible to request an exemption for national security.

(f) Owners and operators of facilities with internal combustion engines that are acting as temporary replacement units and that are located at a stationary source for less than 1 year and that have been properly certified as meeting the standards that would be applicable to such engine under the appropriate nonroad engine provisions, are not required to meet any other provisions under this subpart with regard to such engines.

Kohler natural gas emergency generators (97.9 HP) engine for the new office building will be used for emergency power and is subject to this subpart.

[73 FR 3591, Jan. 18, 2008, as amended at 76 FR 37972, June 28, 2011]

EMISSION STANDARDS FOR MANUFACTURERS

Does not apply; not a manufacturer.

EMISSION STANDARDS FOR OWNERS AND OPERATORS

§60.4233 What emission standards must I meet if I am an owner or operator of a stationary SI internal combustion engine?

(a) Owners and operators of stationary SI ICE with a maximum engine power less than or equal to 19 KW (25 HP) manufactured on or after July 1, 2008, must comply with the emission standards in §60.4231(a) for their stationary SI ICE.

(b) Owners and operators of stationary SI ICE with a maximum engine power greater than 19 KW (25 HP)

manufactured on or after the applicable date in §60.4230(a)(4) that use gasoline must comply with the emission standards in §60.4231(b) for their stationary SI ICE.

(c) Owners and operators of stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) manufactured on or after the applicable date in §60.4230(a)(4) that are rich burn engines that use LPG must comply with the emission standards in §60.4231(c) for their stationary SI ICE.

(d) Owners and operators of stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) and less than 75 KW (100 HP) (except gasoline and rich burn engines that use LPG) must comply with the emission standards for field testing in 40 CFR 1048.101(c) for their non-emergency stationary SI ICE and with the emission standards in Table 1 to this subpart for their emergency stationary SI ICE. Owners and operators of stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) and less than 75 KW (100 HP) manufactured prior to January 1, 2011, that were certified to the standards in Table 1 to this subpart applicable to engines with a maximum engine power greater than or equal to 100 HP and less than 500 HP, may optionally choose to meet those standards.

Comply with the emission standards for emergency stationary using Certificate

(e) Owners and operators of stationary SI ICE with a maximum engine power greater than or equal to 75 KW (100 HP) (except gasoline and rich burn engines that use LPG) must comply with the emission standards in Table 1 to this subpart for their stationary SI ICE. For owners and operators of stationary SI ICE with a maximum engine power greater than or equal to 100 HP (except gasoline and rich burn engines that use LPG) manufactured prior to January 1, 2011 that were certified to the certification emission standards in 40 CFR part 1048 applicable to engines that are not severe duty engines, if such stationary SI ICE was certified to a carbon monoxide (CO) standard above the standard in Table 1 to this subpart, then the owners and operators may meet the CO certification (not field testing) standard for which the engine was certified.

(f) Owners and operators of any modified or reconstructed stationary SI ICE subject to this subpart must meet the requirements as specified in paragraphs (f)(1) through (5) of this section.

(1) Owners and operators of stationary SI ICE with a maximum engine power less than or equal to 19 KW (25 HP), that are modified or reconstructed after June 12, 2006, must comply with emission standards in §60.4231(a) for their stationary SI ICE. Engines with a date of manufacture prior to July 1, 2008 must comply with the emission standards specified in §60.4231(a) applicable to engines manufactured on July 1, 2008.

(2) Owners and operators of stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) that are gasoline engines and are modified or reconstructed after June 12, 2006, must comply with the emission standards in §60.4231(b) for their stationary SI ICE. Engines with a date of manufacture prior to July 1, 2008 (or January 1, 2009 for emergency engines) must comply with the emission standards specified in §60.4231(b) applicable to engines manufactured on July 1, 2008 (or January 1, 2009 for emergency engines).

(3) Owners and operators of stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) that are rich burn engines that use LPG, that are modified or reconstructed after June 12, 2006, must comply with the same emission standards as those specified in §60.4231(c). Engines with a date of manufacture prior to July 1, 2008 (or January 1, 2009 for emergency engines) must comply with the emission standards specified in §60.4231(c) applicable to engines manufactured on July 1, 2008 (or January 1, 2009 for emergency engines).

(4) Owners and operators of stationary SI natural gas and lean burn LPG engines with a maximum engine power greater than 19 KW (25 HP), that are modified or reconstructed after June 12, 2006, must comply with the same emission standards as those specified in paragraph (d) or (e) of this section, except that such owners and operators of non-emergency engines and emergency engines greater than or equal to 130 HP must meet a nitrogen oxides (NO_x) emission standard of 3.0 grams per HP-hour (g/HP-hr), a CO emission standard of 4.0 g/HP-hr (5.0 g/HP-hr for non-emergency engines less than 100 HP), and a volatile organic compounds (VOC) emission standard of 1.0 g/HP-hr, or a NO_x emission standard of 250 ppmvd at 15 percent oxygen (O_2), a CO emission standard 540 ppmvd at 15 percent O_2 (675 ppmvd at 15 percent O_2 for non-emergency engines less than 100 HP), and a VOC emission standard of 86 ppmvd at 15 percent O_2, where the date of manufacture of the

engine is:

(i) Prior to July 1, 2007, for non-emergency engines with a maximum engine power greater than or equal to 500 HP (except lean burn natural gas engines and LPG engines with a maximum engine power greater than or equal to 500 HP and less than 1,350 HP);

(ii) Prior to July 1, 2008, for non-emergency engines with a maximum engine power less than 500 HP;

(iii) Prior to January 1, 2009, for emergency engines;

(iv) Prior to January 1, 2008, for non-emergency lean burn natural gas engines and LPG engines with a maximum engine power greater than or equal to 500 HP and less than 1,350 HP.

(5) Owners and operators of stationary SI landfill/digester gas ICE engines with a maximum engine power greater than 19 KW (25 HP), that are modified or reconstructed after June 12, 2006, must comply with the same emission standards as those specified in paragraph (e) of this section for stationary landfill/digester gas engines. Engines with maximum engine power less than 500 HP and a date of manufacture prior to July 1, 2008 must comply with the emission standards specified in paragraph (e) of this section for stationary landfill/digester gas ICE with a maximum engine power less than 500 HP manufactured on July 1, 2008. Engines with a maximum engine power greater than or equal to 500 HP (except lean burn engines greater than or equal to 500 HP and less than 1,350 HP) and a date of manufacture prior to July 1, 2007 must comply with the emission standards specified in paragraph (e) of this section for stationary landfill/digester gas ICE with a maximum engine power greater than or equal to 500 HP (except lean burn engines greater than or equal to 500 HP and less than 1,350 HP) manufactured on July 1, 2007. Lean burn engines greater than or equal to 500 HP and less than 1,350 HP with a date of manufacture prior to January 1, 2008 must comply with the emission standards specified in paragraph (e) of this section for stationary landfill/digester gas ICE that are lean burn engines greater than or equal to 500 HP and less than 1,350 HP and manufactured on January 1, 2008.

(g) Owners and operators of stationary SI wellhead gas ICE engines may petition the Administrator for approval on a case-by-case basis to meet emission standards no less stringent than the emission standards that apply to stationary emergency SI engines greater than 25 HP and less than 130 HP due to the presence of high sulfur levels in the fuel, as specified in Table 1 to this subpart. The request must, at a minimum, demonstrate that the fuel has high sulfur levels that prevent the use of aftertreatment controls and also that the owner has reasonably made all attempts possible to obtain an engine that will meet the standards without the use of aftertreatment controls. The petition must request the most stringent standards reasonably applicable to the engine using the fuel.

(h) Owners and operators of stationary SI ICE that are required to meet standards that reference 40 CFR 1048.101 must, if testing their engines in use, meet the standards in that section applicable to field testing, except as indicated in paragraph (e) of this section.

[73 FR 3591, Jan. 18, 2008, as amended at 76 FR 37973, June 28, 2011]

§60.4234 How long must I meet the emission standards if I am an owner or operator of a stationary SI internal combustion engine?

Owners and operators of stationary SI ICE must operate and maintain stationary SI ICE that achieve the emission standards as required in §60.4233 over the entire life of the engine.

OTHER REQUIREMENTS FOR OWNERS AND OPERATORS

§60.4235 What fuel requirements must I meet if I am an owner or operator of a stationary SI gasoline fired internal combustion engine subject to this subpart?

Owners and operators of stationary SI ICE subject to this subpart that use gasoline must use gasoline that meets the per gallon sulfur limit in 40 CFR 80.195.

§60.4236 What is the deadline for importing or installing stationary SI ICE produced in previous model years?

(a) After July 1, 2010, owners and operators may not install stationary SI ICE with a maximum engine power of less than 500 HP that do not meet the applicable requirements in §60.4233.

(b) After July 1, 2009, owners and operators may not install stationary SI ICE with a maximum engine power of greater than or equal to 500 HP that do not meet the applicable requirements in §60.4233, except that lean burn engines with a maximum engine power greater than or equal to 500 HP and less than 1,350 HP that do not meet the applicable requirements in §60.4233 may not be installed after January 1, 2010.

(c) For emergency stationary SI ICE with a maximum engine power of greater than 19 KW (25 HP), owners and operators may not install engines that do not meet the applicable requirements in §60.4233 after January 1, 2011.

(d) In addition to the requirements specified in §§60.4231 and 60.4233, it is prohibited to import stationary SI ICE less than or equal to 19 KW (25 HP), stationary rich burn LPG SI ICE, and stationary gasoline SI ICE that do not meet the applicable requirements specified in paragraphs (a), (b), and (c) of this section, after the date specified in paragraph (a), (b), and (c) of this section.

(e) The requirements of this section do not apply to owners and operators of stationary SI ICE that have been modified or reconstructed, and they do not apply to engines that were removed from one existing location and reinstalled at a new location.

§60.4237 What are the monitoring requirements if I am an owner or operator of an emergency stationary SI internal combustion engine?

(a) Starting on July 1, 2010, if the emergency stationary SI internal combustion engine that is greater than or equal to 500 HP that was built on or after July 1, 2010, does not meet the standards applicable to non-emergency engines, the owner or operator must install a non-resettable hour meter.

(b) Starting on January 1, 2011, if the emergency stationary SI internal combustion engine that is greater than or equal to 130 HP and less than 500 HP that was built on or after January 1, 2011, does not meet the standards applicable to non-emergency engines, the owner or operator must install a non-resettable hour meter.

(c) If you are an owner or operator of an emergency stationary SI internal combustion engine that is less than 130 HP, was built on or after July 1, 2008, and does not meet the standards applicable to non-emergency engines, you must install a non-resettable hour meter upon startup of your emergency engine.

COMPLIANCE REQUIREMENTS FOR MANUFACTURERS

Not a manufacturer, does not apply

COMPLIANCE REQUIREMENTS FOR OWNERS AND OPERATORS

§60.4243 What are my compliance requirements if I am an owner or operator of a stationary SI internal combustion engine?

(a) If you are an owner or operator of a stationary SI internal combustion engine that is manufactured after July 1, 2008, and must comply with the emission standards specified in §60.4233(a) through (c), you must comply by purchasing an engine certified to the emission standards in §60.4231(a) through (c), as applicable, for the same engine class and maximum engine power. In addition, you must meet one of the requirements specified in

(a)(1) and (2) of this section.

(1) If you operate and maintain the certified stationary SI internal combustion engine and control device according to the manufacturer's emission-related written instructions, you must keep records of conducted maintenance to demonstrate compliance, but no performance testing is required if you are an owner or operator. You must also meet the requirements as specified in 40 CFR part 1068, subparts A through D, as they apply to you. If you adjust engine settings according to and consistent with the manufacturer's instructions, your stationary SI internal combustion engine will not be considered out of compliance.

(2) If you do not operate and maintain the certified stationary SI internal combustion engine and control device according to the manufacturer's emission-related written instructions, your engine will be considered a non-certified engine, and you must demonstrate compliance according to (a)(2)(i) through (iii) of this section, as appropriate.

(i) If you are an owner or operator of a stationary SI internal combustion engine less than 100 HP, you must keep a maintenance plan and records of conducted maintenance to demonstrate compliance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions, but no performance testing is required if you are an owner or operator.

(ii) If you are an owner or operator of a stationary SI internal combustion engine greater than or equal to 100 HP and less than or equal to 500 HP, you must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, you must conduct an initial performance test within 1 year of engine startup to demonstrate compliance.

(iii) If you are an owner or operator of a stationary SI internal combustion engine greater than 500 HP, you must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, you must conduct an initial performance test within 1 year of engine startup and conduct subsequent performance testing every 8,760 hours or 3 years, whichever comes first, thereafter to demonstrate compliance.

(b) If you are an owner or operator of a stationary SI internal combustion engine and must comply with the emission standards specified in §60.4233(d) or (e), you must demonstrate compliance according to one of the methods specified in paragraphs (b)(1) and (2) of this section.

(1) Purchasing an engine certified according to procedures specified in this subpart, for the same model year and demonstrating compliance according to one of the methods specified in paragraph (a) of this section.

(2) Purchasing a non-certified engine and demonstrating compliance with the emission standards specified in §60.4233(d) or (e) and according to the requirements specified in §60.4244, as applicable, and according to paragraphs (b)(2)(i) and (ii) of this section.

(i) If you are an owner or operator of a stationary SI internal combustion engine greater than 25 HP and less than or equal to 500 HP, you must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, you must conduct an initial performance test to demonstrate compliance.

(ii) If you are an owner or operator of a stationary SI internal combustion engine greater than 500 HP, you must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, you must conduct an initial performance test and conduct subsequent performance testing every 8,760 hours or 3 years, whichever comes first, thereafter to demonstrate compliance.

(c) If you are an owner or operator of a stationary SI internal combustion engine that must comply with the

emission standards specified in §60.4233(f), you must demonstrate compliance according paragraph (b)(2)(i) or (ii) of this section, except that if you comply according to paragraph (b)(2)(i) of this section, you demonstrate that your non-certified engine complies with the emission standards specified in §60.4233(f).

(d) If you own or operate an emergency stationary ICE, you must operate the emergency stationary ICE according to the requirements in paragraphs (d)(1) through (3) of this section. In order for the engine to be considered an emergency stationary ICE under this subpart, any operation other than emergency operation, maintenance and testing, emergency demand response, and operation in non-emergency situations for 50 hours per year, as described in paragraphs (d)(1) through (3) of this section, is prohibited. If you do not operate the engine according to the requirements in paragraphs (d)(1) through (3) of this section, the engine will not be considered an emergency engine under this subpart and must meet all requirements for non-emergency engines.

(1) There is no time limit on the use of emergency stationary ICE in emergency situations.

(2) You may operate your emergency stationary ICE for any combination of the purposes specified in paragraphs (d)(2)(i) through (iii) of this section for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed by paragraph (d)(3) of this section counts as part of the 100 hours per calendar year allowed by this paragraph (d)(2).

(i) Emergency stationary ICE may be operated for maintenance checks and readiness testing, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The owner or operator may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that federal, state, or local standards require maintenance and testing of emergency ICE beyond 100 hours per calendar year.

(ii) Emergency stationary ICE may be operated for emergency demand response for periods in which the Reliability Coordinator under the North American Electric Reliability Corporation (NERC) Reliability Standard EOP-002-3, Capacity and Energy Emergencies (incorporated by reference, see §60.17), or other authorized entity as determined by the Reliability Coordinator, has declared an Energy Emergency Alert Level 2 as defined in the NERC Reliability Standard EOP-002-3.

(iii) Emergency stationary ICE may be operated for periods where there is a deviation of voltage or frequency of 5 percent or greater below standard voltage or frequency.

(3) Emergency stationary ICE may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing and emergency demand response provided in paragraph (d)(2) of this section. Except as provided in paragraph (d)(3)(i) of this section, the 50 hours per year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to an electric grid or otherwise supply power as part of a financial arrangement with another entity.

(i) The 50 hours per year for non-emergency situations can be used to supply power as part of a financial arrangement with another entity if all of the following conditions are met:

(A) The engine is dispatched by the local balancing authority or local transmission and distribution system operator;

(B) The dispatch is intended to mitigate local transmission and/or distribution limitations so as to avert potential voltage collapse or line overloads that could lead to the interruption of power supply in a local area or region.

(C) The dispatch follows reliability, emergency operation or similar protocols that follow specific NERC, regional, state, public utility commission or local standards or guidelines.

(D) The power is provided only to the facility itself or to support the local transmission and distribution system.

(E) The owner or operator identifies and records the entity that dispatches the engine and the specific NERC, regional, state, public utility commission or local standards or guidelines that are being followed for dispatching the engine. The local balancing authority or local transmission and distribution system operator may keep these records on behalf of the engine owner or operator.

(ii) [Reserved]

(e) Owners and operators of stationary SI natural gas fired engines may operate their engines using propane for a maximum of 100 hours per year as an alternative fuel solely during emergency operations, but must keep records of such use. If propane is used for more than 100 hours per year in an engine that is not certified to the emission standards when using propane, the owners and operators are required to conduct a performance test to demonstrate compliance with the emission standards of §60.4233.

(f) If you are an owner or operator of a stationary SI internal combustion engine that is less than or equal to 500 HP and you purchase a non-certified engine or you do not operate and maintain your certified stationary SI internal combustion engine and control device according to the manufacturer's written emission-related instructions, you are required to perform initial performance testing as indicated in this section, but you are not required to conduct subsequent performance testing unless the stationary engine is rebuilt or undergoes major repair or maintenance. A rebuilt stationary SI ICE means an engine that has been rebuilt as that term is defined in 40 CFR 94.11(a).

(g) It is expected that air-to-fuel ratio controllers will be used with the operation of three-way catalysts/non-selective catalytic reduction. The AFR controller must be maintained and operated appropriately in order to ensure proper operation of the engine and control device to minimize emissions at all times.

(h) If you are an owner/operator of an stationary SI internal combustion engine with maximum engine power greater than or equal to 500 HP that is manufactured after July 1, 2007 and before July 1, 2008, and must comply with the emission standards specified in sections 60.4233(b) or (c), you must comply by one of the methods specified in paragraphs (h)(1) through (h)(4) of this section.

(1) Purchasing an engine certified according to 40 CFR part 1048. The engine must be installed and configured according to the manufacturer's specifications.

(2) Keeping records of performance test results for each pollutant for a test conducted on a similar engine. The test must have been conducted using the same methods specified in this subpart and these methods must have been followed correctly.

(3) Keeping records of engine manufacturer data indicating compliance with the standards.

(4) Keeping records of control device vendor data indicating compliance with the standards.

(i) If you are an owner or operator of a modified or reconstructed stationary SI internal combustion engine and must comply with the emission standards specified in §60.4233(f), you must demonstrate compliance according to one of the methods specified in paragraphs (i)(1) or (2) of this section.

(1) Purchasing, or otherwise owning or operating, an engine certified to the emission standards in §60.4233(f), as applicable.

(2) Conducting a performance test to demonstrate initial compliance with the emission standards according to the requirements specified in §60.4244. The test must be conducted within 60 days after the engine commences operation after the modification or reconstruction.

[73 FR 3591, Jan. 18, 2008, as amended at 76 FR 37974, June 28, 2011; 78 FR 6697, Jan. 30, 2013]

TESTING REQUIREMENTS FOR OWNERS AND OPERATORS

§60.4244 What test methods and other procedures must I use if I am an owner or operator of a stationary SI internal combustion engine?

Owners and operators of stationary SI ICE who conduct performance tests must follow the procedures in paragraphs (a) through (f) of this section.

(a) Each performance test must be conducted within 10 percent of 100 percent peak (or the highest achievable) load and according to the requirements in §60.8 and under the specific conditions that are specified by Table 2 to this subpart.

(b) You may not conduct performance tests during periods of startup, shutdown, or malfunction, as specified in §60.8(c). If your stationary SI internal combustion engine is non-operational, you do not need to startup the engine solely to conduct a performance test; however, you must conduct the performance test immediately upon startup of the engine.

(c) You must conduct three separate test runs for each performance test required in this section, as specified in §60.8(f). Each test run must be conducted within 10 percent of 100 percent peak (or the highest achievable) load and last at least 1 hour.

(d) To determine compliance with the NO_x mass per unit output emission limitation, convert the concentration of NO_x in the engine exhaust using Equation 1 of this section:

$$ER = \frac{C_d \times 1.912 \times 10^{-3} \times Q \times T}{HP\text{-}hr} \quad \text{Eq. 1}$$

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Where:

ER = Emission rate of NO_x in g/HP-hr.

C_d = Measured NO_x concentration in parts per million by volume (ppmv).

1.912×10^{-3} = Conversion constant for ppm NO_x to grams per standard cubic meter at 20 degrees Celsius.

Q = Stack gas volumetric flow rate, in standard cubic meter per hour, dry basis.

T = Time of test run, in hours.

HP-hr = Brake work of the engine, horsepower-hour (HP-hr).

(e) To determine compliance with the CO mass per unit output emission limitation, convert the concentration of CO in the engine exhaust using Equation 2 of this section:

$$ER = \frac{C_d \times 1.164 \times 10^{-3} \times Q \times T}{HP\text{-}hr} \quad \text{Eq. 2}$$

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Where:

ER = Emission rate of CO in g/HP-hr.

C_d = Measured CO concentration in ppmv.

1.164×10^{-3} = Conversion constant for ppm CO to grams per standard cubic meter at 20 degrees Celsius.

Q = Stack gas volumetric flow rate, in standard cubic meters per hour, dry basis.

T = Time of test run, in hours.

HP-hr = Brake work of the engine, in HP-hr.

(f) For purposes of this subpart, when calculating emissions of VOC, emissions of formaldehyde should not be included. To determine compliance with the VOC mass per unit output emission limitation, convert the concentration of VOC in the engine exhaust using Equation 3 of this section:

ER [illegible] Eq. 3

HP-hr

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Where:

ER = Emission rate of VOC in g/HP-hr.

C_d = VOC concentration measured as propane in ppmv.

1.833×10^{-3} = Conversion constant for ppm VOC measured as propane, to grams per standard cubic meter at 20 degrees Celsius.

Q = Stack gas volumetric flow rate, in standard cubic meters per hour, dry basis.

T = Time of test run, in hours.

HP-hr = Brake work of the engine, in HP-hr.

(g) If the owner/operator chooses to measure VOC emissions using either Method 18 of 40 CFR part 60, appendix A, or Method 320 of 40 CFR part 63, appendix A, then it has the option of correcting the measured VOC emissions to account for the potential differences in measured values between these methods and Method 25A. The results from Method 18 and Method 320 can be corrected for response factor differences using Equations 4 and 5 of this section. The corrected VOC concentration can then be placed on a propane basis using Equation 6 of this section.

RF [illegible] Eq. 4

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Where:

RF_i = Response factor of compound i when measured with EPA Method 25A.

C_{Mi} = Measured concentration of compound i in ppmv as carbon.

C_{Ai} = True concentration of compound i in ppmv as carbon.

[illegible] Eq. 5

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Where:

C_{icorr} = Concentration of compound i corrected to the value that would have been measured by EPA Method 25A, ppmv as carbon.

C_{imeas} = Concentration of compound i measured by EPA Method 320, ppmv as carbon.

$C_{Eq} = 0.6098 \times C_{icorr}$ (Eq. 6)

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Where:

C_{Peq} = Concentration of compound i in mg of propane equivalent per DSCM.

NOTIFICATION, REPORTS, AND RECORDS FOR OWNERS AND OPERATORS

§60.4245 What are my notification, reporting, and recordkeeping requirements if I am an owner or operator of a stationary SI internal combustion engine?

Owners or operators of stationary SI ICE must meet the following notification, reporting and recordkeeping requirements.

(a) Owners and operators of all stationary SI ICE must keep records of the information in paragraphs (a)(1) through (4) of this section.

(1) All notifications submitted to comply with this subpart and all documentation supporting any notification.

(2) Maintenance conducted on the engine.

(3) If the stationary SI internal combustion engine is a certified engine, documentation from the manufacturer that the engine is certified to meet the emission standards and information as required in 40 CFR parts 90, 1048, 1054, and 1060, as applicable.

(4) If the stationary SI internal combustion engine is not a certified engine or is a certified engine operating in a non-certified manner and subject to §60.4243(a)(2), documentation that the engine meets the emission standards.

(b) For all stationary SI emergency ICE greater than or equal to 500 HP manufactured on or after July 1, 2010, that do not meet the standards applicable to non-emergency engines, the owner or operator of must keep records of the hours of operation of the engine that is recorded through the non-resettable hour meter. For all stationary SI emergency ICE greater than or equal to 130 HP and less than 500 HP manufactured on or after July 1, 2011 that do not meet the standards applicable to non-emergency engines, the owner or operator of must keep records of the hours of operation of the engine that is recorded through the non-resettable hour meter. For all stationary SI emergency ICE greater than 25 HP and less than 130 HP manufactured on or after July 1, 2008, that do not meet the standards applicable to non-emergency engines, the owner or operator of must keep records of the hours of operation of the engine that is recorded through the non-resettable hour meter. The owner or operator must document how many hours are spent for emergency operation, including what classified the operation as emergency and how many hours are spent for non-emergency operation.

(c) Owners and operators of stationary SI ICE greater than or equal to 500 HP that have not been certified by an engine manufacturer to meet the emission standards in §60.4231 must submit an initial notification as required in §60.7(a)(1). The notification must include the information in paragraphs (c)(1) through (5) of this section.

(1) Name and address of the owner or operator;

(2) The address of the affected source;

(3) Engine information including make, model, engine family, serial number, model year, maximum engine power, and engine displacement;

(4) Emission control equipment; and

(5) Fuel used.

(d) Owners and operators of stationary SI ICE that are subject to performance testing must submit a copy of each performance test as conducted in §60.4244 within 60 days after the test has been completed. Performance test reports using EPA Method 18, EPA Method 320, or ASTM D6348-03 (incorporated by reference—see 40 CFR 60.17) to measure VOC require reporting of all QA/QC data. For Method 18, report results from sections 8.4 and 11.1.1.4; for Method 320, report results from sections 8.6.2, 9.0, and 13.0; and for ASTM D6348-03 report results of all QA/QC procedures in Annexes 1-7.

(e) If you own or operate an emergency stationary SI ICE with a maximum engine power more than 100 HP that operates or is contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §60.4243(d)(2)(ii) and (iii) or that operates for the purposes specified in §60.4243(d)(3)(i), you must submit an annual report according to the requirements in paragraphs (e)(1) through (3) of this section.

(1) The report must contain the following information:

(i) Company name and address where the engine is located.

(ii) Date of the report and beginning and ending dates of the reporting period.

(iii) Engine site rating and model year.

(iv) Latitude and longitude of the engine in decimal degrees reported to the fifth decimal place.

(v) Hours operated for the purposes specified in §60.4243(d)(2)(ii) and (iii), including the date, start time, and end time for engine operation for the purposes specified in §60.4243(d)(2)(ii) and (iii).

(vi) Number of hours the engine is contractually obligated to be available for the purposes specified in §60.4243(d)(2)(ii) and (iii).

(vii) Hours spent for operation for the purposes specified in §60.4243(d)(3)(i), including the date, start time, and end time for engine operation for the purposes specified in §60.4243(d)(3)(i). The report must also identify the entity that dispatched the engine and the situation that necessitated the dispatch of the engine.

(2) The first annual report must cover the calendar year 2015 and must be submitted no later than March 31, 2016. Subsequent annual reports for each calendar year must be submitted no later than March 31 of the following calendar year.

(3) The annual report must be submitted electronically using the subpart specific reporting form in the Compliance and Emissions Data Reporting Interface (CEDRI) that is accessed through EPA's Central Data Exchange (CDX) (*www.epa.gov/cdx*). However, if the reporting form specific to this subpart is not available in CEDRI at the time that the report is due, the written report must be submitted to the Administrator at the appropriate address listed in §60.4.

[73 FR 3591, Jan. 18, 2008, as amended at 73 FR 59177, Oct. 8, 2008; 78 FR 6697, Jan. 30, 2013; 81 FR 59809, Aug. 30, 2016]

General Provisions

§60.4246 What parts of the General Provisions apply to me?

Table 3 to this subpart shows which parts of the General Provisions in §§60.1 through 60.19 apply to you.

Mobile Source Provisions

§60.4247 What parts of the mobile source provisions apply to me if I am a manufacturer of stationary SI

internal combustion engines or a manufacturer of equipment containing such engines?

(a) Manufacturers certifying to emission standards in 40 CFR part 90, including manufacturers certifying emergency engines below 130 HP, must meet the provisions of 40 CFR part 90. Manufacturers certifying to emission standards in 40 CFR part 1054 must meet the provisions of 40 CFR part 1054. Manufacturers of equipment containing stationary SI internal combustion engines meeting the provisions of 40 CFR part 1054 must meet the provisions of 40 CFR part 1060 to the extent they apply to equipment manufacturers.

(b) Manufacturers required to certify to emission standards in 40 CFR part 1048 must meet the provisions of 40 CFR part 1048. Manufacturers certifying to emission standards in 40 CFR part 1048 pursuant to the voluntary certification program must meet the requirements in Table 4 to this subpart as well as the standards in 40 CFR 1048.101.

(c) For manufacturers of stationary SI internal combustion engines participating in the voluntary certification program and certifying engines to Table 1 to this subpart, Table 4 to this subpart shows which parts of the mobile source provisions in 40 CFR parts 1048, 1065, and 1068 apply to you. Compliance with the deterioration factor provisions under 40 CFR 1048.205(n) and 1048.240 will be required for engines built new on and after January 1, 2010. Prior to January 1, 2010, manufacturers of stationary internal combustion engines participating in the voluntary certification program have the option to develop their own deterioration factors based on an engineering analysis.

[73 FR 3591, Jan. 18, 2008, as amended at 73 FR 59177, Oct. 8, 2008]

DEFINITIONS

§60.4248 What definitions apply to this subpart?

As used in this subpart, all terms not defined herein shall have the meaning given them in the CAA and in subpart A of this part.

Certified emissions life means the period during which the engine is designed to properly function in terms of reliability and fuel consumption, without being remanufactured, specified as a number of hours of operation or calendar years, whichever comes first. The values for certified emissions life for stationary SI ICE with a maximum engine power less than or equal to 19 KW (25 HP) are given in 40 CFR 90.105, 40 CFR 1054.107, and 40 CFR 1060.101, as appropriate. The values for certified emissions life for stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) certified to 40 CFR part 1048 are given in 40 CFR 1048.101(g). The certified emissions life for stationary SI ICE with a maximum engine power greater than 75 KW (100 HP) certified under the voluntary manufacturer certification program of this subpart is 5,000 hours or 7 years, whichever comes first. You may request in your application for certification that we approve a shorter certified emissions life for an engine family. We may approve a shorter certified emissions life, in hours of engine operation but not in years, if we determine that these engines will rarely operate longer than the shorter certified emissions life. If engines identical to those in the engine family have already been produced and are in use, your demonstration must include documentation from such in-use engines. In other cases, your demonstration must include an engineering analysis of information equivalent to such in-use data, such as data from research engines or similar engine models that are already in production. Your demonstration must also include any overhaul interval that you recommend, any mechanical warranty that you offer for the engine or its components, and any relevant customer design specifications. Your demonstration may include any other relevant information. The certified emissions life value may not be shorter than any of the following:

(i) 1,000 hours of operation.

(ii) Your recommended overhaul interval.

(iii) Your mechanical warranty for the engine.

Certified stationary internal combustion engine means an engine that belongs to an engine family that has a

certificate of conformity that complies with the emission standards and requirements in this part, or of 40 CFR part 90, 40 CFR part 1048, or 40 CFR part 1054, as appropriate.

Combustion turbine means all equipment, including but not limited to the turbine, the fuel, air, lubrication and exhaust gas systems, control systems (except emissions control equipment), and any ancillary components and sub-components comprising any simple cycle combustion turbine, any regenerative/recuperative cycle combustion turbine, the combustion turbine portion of any cogeneration cycle combustion system, or the combustion turbine portion of any combined cycle steam/electric generating system.

Compression ignition means relating to a type of stationary internal combustion engine that is not a spark ignition engine.

Date of manufacture means one of the following things:

(1) For freshly manufactured engines and modified engines, date of manufacture means the date the engine is originally produced.

(2) For reconstructed engines, date of manufacture means the date the engine was originally produced, except as specified in paragraph (3) of this definition.

(3) Reconstructed engines are assigned a new date of manufacture if the fixed capital cost of the new and refurbished components exceeds 75 percent of the fixed capital cost of a comparable entirely new facility. An engine that is produced from a previously used engine block does not retain the date of manufacture of the engine in which the engine block was previously used if the engine is produced using all new components except for the engine block. In these cases, the date of manufacture is the date of reconstruction or the date the new engine is produced.

Diesel fuel means any liquid obtained from the distillation of petroleum with a boiling point of approximately 150 to 360 degrees Celsius. One commonly used form is number 2 distillate oil.

Digester gas means any gaseous by-product of wastewater treatment typically formed through the anaerobic decomposition of organic waste materials and composed principally of methane and carbon dioxide (CO_2).

Emergency stationary internal combustion engine means any stationary reciprocating internal combustion engine that meets all of the criteria in paragraphs (1) through (3) of this definition. All emergency stationary ICE must comply with the requirements specified in §60.4243(d) in order to be considered emergency stationary ICE. If the engine does not comply with the requirements specified in §60.4243(d), then it is not considered to be an emergency stationary ICE under this subpart.

(1) The stationary ICE is operated to provide electrical power or mechanical work during an emergency situation. Examples include stationary ICE used to produce power for critical networks or equipment (including power supplied to portions of a facility) when electric power from the local utility (or the normal power source, if the facility runs on its own power production) is interrupted, or stationary ICE used to pump water in the case of fire or flood, etc.

(2) The stationary ICE is operated under limited circumstances for situations not included in paragraph (1) of this definition, as specified in §60.4243(d).

(3) The stationary ICE operates as part of a financial arrangement with another entity in situations not included in paragraph (1) of this definition only as allowed in §60.4243(d)(2)(ii) or (iii) and §60.4243(d)(3)(i).

Engine manufacturer means the manufacturer of the engine. See the definition of "manufacturer" in this section.

Four-stroke engine means any type of engine which completes the power cycle in two crankshaft revolutions, with intake and compression strokes in the first revolution and power and exhaust strokes in the

second revolution.

Freshly manufactured engine means an engine that has not been placed into service. An engine becomes freshly manufactured when it is originally produced.

Gasoline means any fuel sold in any State for use in motor vehicles and motor vehicle engines, or nonroad or stationary engines, and commonly or commercially known or sold as gasoline.

Installed means the engine is placed and secured at the location where it is intended to be operated.

Landfill gas means a gaseous by-product of the land application of municipal refuse typically formed through the anaerobic decomposition of waste materials and composed principally of methane and CO_2.

Lean burn engine means any two-stroke or four-stroke spark ignited engine that does not meet the definition of a rich burn engine.

Liquefied petroleum gas means any liquefied hydrocarbon gas obtained as a by-product in petroleum refining or natural gas production.

Manufacturer has the meaning given in section 216(1) of the Clean Air Act. In general, this term includes any person who manufactures a stationary engine for sale in the United States or otherwise introduces a new stationary engine into commerce in the United States. This includes importers who import stationary engines for resale.

Maximum engine power means maximum engine power as defined in 40 CFR 1048.801.

Model year means the calendar year in which an engine is manufactured (see "date of manufacture"), except as follows:

(1) Model year means the annual new model production period of the engine manufacturer in which an engine is manufactured (see "date of manufacture"), if the annual new model production period is different than the calendar year and includes January 1 of the calendar year for which the model year is named. It may not begin before January 2 of the previous calendar year and it must end by December 31 of the named calendar year.

(2) For an engine that is converted to a stationary engine after being placed into service as a nonroad or other non-stationary engine, model year means the calendar year or new model production period in which the engine was manufactured (see "date of manufacture").

Natural gas means a naturally occurring mixture of hydrocarbon and non-hydrocarbon gases found in geologic formations beneath the Earth's surface, of which the principal constituent is methane. Natural gas may be field or pipeline quality.

Other internal combustion engine means any internal combustion engine, except combustion turbines, which is not a reciprocating internal combustion engine or rotary internal combustion engine.

Pipeline-quality natural gas means a naturally occurring fluid mixture of hydrocarbons (e.g., methane, ethane, or propane) produced in geological formations beneath the Earth's surface that maintains a gaseous state at standard atmospheric temperature and pressure under ordinary conditions, and which is provided by a supplier through a pipeline. Pipeline-quality natural gas must either be composed of at least 70 percent methane by volume or have a gross calorific value between 950 and 1,100 British thermal units per standard cubic foot.

Rich burn engine means any four-stroke spark ignited engine where the manufacturer's recommended operating air/fuel ratio divided by the stoichiometric air/fuel ratio at full load conditions is less than or equal to 1.1. Engines originally manufactured as rich burn engines, but modified prior to June 12, 2006, with passive emission control technology for NO_x (such as pre-combustion chambers) will be considered lean burn engines. Also,

existing engines where there are no manufacturer's recommendations regarding air/fuel ratio will be considered a rich burn engine if the excess oxygen content of the exhaust at full load conditions is less than or equal to 2 percent.

Rotary internal combustion engine means any internal combustion engine which uses rotary motion to convert heat energy into mechanical work.

Spark ignition means relating to either: a gasoline-fueled engine; or any other type of engine with a spark plug (or other sparking device) and with operating characteristics significantly similar to the theoretical Otto combustion cycle. Spark ignition engines usually use a throttle to regulate intake air flow to control power during normal operation. Dual-fuel engines in which a liquid fuel (typically diesel fuel) is used for compression ignition and gaseous fuel (typically natural gas) is used as the primary fuel at an annual average ratio of less than 2 parts diesel fuel to 100 parts total fuel on an energy equivalent basis are spark ignition engines.

Stationary internal combustion engine means any internal combustion engine, except combustion turbines, that converts heat energy into mechanical work and is not mobile. Stationary ICE differ from mobile ICE in that a stationary internal combustion engine is not a nonroad engine as defined at 40 CFR 1068.30 (excluding paragraph (2)(ii) of that definition), and is not used to propel a motor vehicle, aircraft, or a vehicle used solely for competition. Stationary ICE include reciprocating ICE, rotary ICE, and other ICE, except combustion turbines.

Stationary internal combustion engine test cell/stand means an engine test cell/stand, as defined in 40 CFR part 63, subpart PPPPP, that tests stationary ICE.

Stoichiometric means the theoretical air-to-fuel ratio required for complete combustion.

Subpart means 40 CFR part 60, subpart JJJJ.

Two-stroke engine means a type of engine which completes the power cycle in single crankshaft revolution by combining the intake and compression operations into one stroke and the power and exhaust operations into a second stroke. This system requires auxiliary scavenging and inherently runs lean of stoichiometric.

Volatile organic compounds means volatile organic compounds as defined in 40 CFR 51.100(s).

Voluntary certification program means an optional engine certification program that manufacturers of stationary SI internal combustion engines with a maximum engine power greater than 19 KW (25 HP) that do not use gasoline and are not rich burn engines that use LPG can choose to participate in to certify their engines to the emission standards in §60.4231(d) or (e), as applicable.

[73 FR 3591, Jan. 18, 2008, as amended at 73 FR 59177, Oct. 8, 2008; 76 FR 37974, June 28, 2011; 78 FR 6698, Jan. 30, 2013]

Table 1 to Subpart JJJJ of Part 60—NO_x, CO, and VOC Emission Standards for Stationary Non-Emergency SI Engines ≥100 HP (Except Gasoline and Rich Burn LPG), Stationary SI Landfill/Digester Gas Engines, and Stationary Emergency Engines >25 HP

Engine type and fuel	Maximum engine power	Manufacture date	Emission standards[a]					
			g/HP-hr			ppmvd at 15% O_2		
			NO_x	CO	VOC[d]	NO_x	CO	VOC[d]
Non-Emergency SI Natural Gas[b] and Non-Emergency SI Lean Burn LPG[b]	100≤HP<500	7/1/2008	2.0	4.0	1.0	160	540	86
		1/1/2011	1.0	2.0	0.7	82	270	60
Non-Emergency SI Lean Burn Natural Gas and	500≤HP<1,350	1/1/2008	2.0	4.0	1.0	160	540	86

LPG								
		7/1/2010	1.0	2.0	0.7	82	270	60
Non-Emergency SI Natural Gas and Non-Emergency SI Lean Burn LPG (except lean burn 500≤HP<1,350)	HP≥500	7/1/2007	2.0	4.0	1.0	160	540	86
	HP≥500	7/1/2010	1.0	2.0	0.7	82	270	60
Landfill/Digester Gas (except lean burn 500≤HP<1,350)	HP<500	7/1/2008	3.0	5.0	1.0	220	610	80
		1/1/2011	2.0	5.0	1.0	150	610	80
	HP≥500	7/1/2007	3.0	5.0	1.0	220	610	80
		7/1/2010	2.0	5.0	1.0	150	610	80
Landfill/Digester Gas Lean Burn	500≤HP<1,350	1/1/2008	3.0	5.0	1.0	220	610	80
		7/1/2010	2.0	5.0	1.0	150	610	80
Emergency	25<HP<130	1/1/2009	[c]10	387	N/A	N/A	N/A	N/A
	HP≥130		2.0	4.0	1.0	160	540	86

[a]Owners and operators of stationary non-certified SI engines may choose to comply with the emission standards in units of either g/HP-hr or ppmvd at 15 percent O_2.

[b]Owners and operators of new or reconstructed non-emergency lean burn SI stationary engines with a site rating of greater than or equal to 250 brake HP located at a major source that are meeting the requirements of 40 CFR part 63, subpart ZZZZ, Table 2a do not have to comply with the CO emission standards of Table 1 of this subpart.

[c]The emission standards applicable to emergency engines between 25 HP and 130 HP are in terms of NO_x + HC.

[d]For purposes of this subpart, when calculating emissions of volatile organic compounds, emissions of formaldehyde should not be included.

[76 FR 37975, June 28, 2011]

Table 2 to Subpart JJJJ of Part 60—Requirements for Performance Tests

[As stated in §60.4244, you must comply with the following requirements for performance tests within 10 percent of 100 percent peak (or the highest achievable) load]

For each	Complying with the requirement to	You must	Using	According to the following requirements
1. Stationary SI internal combustion engine demonstrating	a. limit the concentration of NO_x in the stationary SI internal	i. Select the sampling port location and the number/location of traverse points at the exhaust of the	(1) Method 1 or 1A of 40 CFR part 60, appendix A-1, if measuring flow rate	(a) Alternatively, for NO_x O_2, and moisture measurement, ducts ≤6 inches in diameter may be sampled at a single point located at the duct

compliance according to §60.4244	combustion engine exhaust	stationary internal combustion engine;		centroid and ducts >6 and ≤12 inches in diameter may be sampled at 3 traverse points located at 16.7, 50.0, and 83.3% of the measurement line (`3-point long line'). If the duct is >12 inches in diameter *and* the sampling port location meets the two and half-diameter criterion of Section 11.1.1 of Method 1 of 40 CFR part 60, Appendix A, the duct may be sampled at `3-point long line'; otherwise, conduct the stratification testing and select sampling points according to Section 8.1.2 of Method 7E of 40 CFR part 60, Appendix A.
		ii. Determine the O_2 concentration of the stationary internal combustion engine exhaust at the sampling port location;	(2) Method 3, 3A, or 3B[b] of 40 CFR part 60, appendix A-2 or ASTM Method D6522-00 (Reapproved 2005)[a d]	(b) Measurements to determine O_2 concentration must be made at the same time as the measurements for NO_x concentration.
		iii. If necessary, determine the exhaust flowrate of the stationary internal combustion engine exhaust;	(3) Method 2 or 2C of 40 CFR part 60, appendix A-1 or Method 19 of 40 CFR part 60, appendix A-7	
		iv. If necessary, measure moisture content of the stationary internal combustion engine exhaust at the sampling port location; and	(4) Method 4 of 40 CFR part 60, appendix A-3, Method 320 of 40 CFR part 63, appendix A[c], or ASTM Method D6348-03[d e]	(c) Measurements to determine moisture must be made at the same time as the measurement for NO_x concentration.
		v. Measure NO_x at the exhaust of the stationary internal combustion engine; if using a control device, the sampling site must be located at the outlet of the	(5) Method 7E of 40 CFR part 60, appendix A-4, ASTM Method D6522-00 (Reapproved 2005)[a d], Method 320 of 40 CFR part 63, appendix A[c], or	(d) Results of this test consist of the average of the three 1-hour or longer runs.

		control device	ASTM Method D6348-03[d c]	
	b. limit the concentration of CO in the stationary SI internal combustion engine exhaust	i. Select the sampling port location and the number/location of traverse points at the exhaust of the stationary internal combustion engine;	(1) Method 1 or 1A of 40 CFR part 60, appendix A-1, if measuring flow rate	(a) Alternatively, for CO, O_2, and moisture measurement, ducts ≤6 inches in diameter may be sampled at a single point located at the duct centroid and ducts >6 and ≤12 inches in diameter may be sampled at 3 traverse points located at 16.7, 50.0, and 83.3% of the measurement line (`3-point long line'). If the duct is >12 inches in diameter *and* the sampling port location meets the two and half-diameter criterion of Section 11.1.1 of Method 1 of 40 CFR part 60, Appendix A, the duct may be sampled at `3-point long line'; otherwise, conduct the stratification testing and select sampling points according to Section 8.1.2 of Method 7E of 40 CFR part 60, Appendix A.
		ii. Determine the O_2 concentration of the stationary internal combustion engine exhaust at the sampling port location;	(2) Method 3, 3A, or 3B[b] of 40 CFR part 60, appendix A-2 or ASTM Method D6522-00 (Reapproved 2005)[a d]	(b) Measurements to determine O_2 concentration must be made at the same time as the measurements for CO concentration.
		iii. If necessary, determine the exhaust flowrate of the stationary internal combustion engine exhaust;	(3) Method 2 or 2C of 40 CFR 60, appendix A-1 or Method 19 of 40 CFR part 60, appendix A-7	
		iv. If necessary, measure moisture content of the stationary internal combustion engine exhaust at the sampling port location; and	(4) Method 4 of 40 CFR part 60, appendix A-3, Method 320 of 40 CFR part 63, appendix A[c], or ASTM Method D6348-03[d c]	(c) Measurements to determine moisture must be made at the same time as the measurement for CO concentration.

		v. Measure CO at the exhaust of the stationary internal combustion engine; if using a control device, the sampling site must be located at the outlet of the control device	(5) Method 10 of 40 CFR part 60, appendix A4, ASTM Method D6522-00 (Reapproved 2005)[a d e], Method 320 of 40 CFR part 63, appendix A[c], or ASTM Method D6348-03[d e]	(d) Results of this test consist of the average of the three 1-hour or longer runs.
	c. limit the concentration of VOC in the stationary SI internal combustion engine exhaust	i. Select the sampling port location and the number/location of traverse points at the exhaust of the stationary internal combustion engine;	(1) Method 1 or 1A of 40 CFR part 60, appendix A-1, if measuring flow rate	(a) Alternatively, for VOC, O_2, and moisture measurement, ducts ≤6 inches in diameter may be sampled at a single point located at the duct centroid and ducts >6 and ≤12 inches in diameter may be sampled at 3 traverse points located at 16.7, 50.0, and 83.3% of the measurement line ('3-point long line'). If the duct is >12 inches in diameter *and* the sampling port location meets the two and half-diameter criterion of Section 11.1.1 of Method 1 of 40 CFR part 60, Appendix A, the duct may be sampled at '3-point long line'; otherwise, conduct the stratification testing and select sampling points according to Section 8.1.2 of Method 7E of 40 CFR part 60, Appendix A.
		ii. Determine the O_2 concentration of the stationary internal combustion engine exhaust at the sampling port location;	(2) Method 3, 3A, or 3B[b] of 40 CFR part 60, appendix A-2 or ASTM Method D6522-00 (Reapproved 2005)[a d]	(b) Measurements to determine O_2 concentration must be made at the same time as the measurements for VOC concentration.
		iii. If necessary, determine the exhaust flowrate of the stationary internal combustion engine exhaust;	(3) Method 2 or 2C of 40 CFR 60, appendix A-1 or Method 19 of 40 CFR part 60, appendix A-7	

		iv. If necessary, measure moisture content of the stationary internal combustion engine exhaust at the sampling port location; and	(4) Method 4 of 40 CFR part 60, appendix A-3, Method 320 of 40 CFR part 63, appendix A[e], or ASTM Method D6348-03[d e]	(c) Measurements to determine moisture must be made at the same time as the measurement for VOC concentration.
		v. Measure VOC at the exhaust of the stationary internal combustion engine; if using a control device, the sampling site must be located at the outlet of the control device	(5) Methods 25A and 18 of 40 CFR part 60, appendices A-6 and A-7, Method 25A with the use of a hydrocarbon cutter as described in 40 CFR 1065.265, Method 18 of 40 CFR part 60, appendix A-6[c e], Method 320 of 40 CFR part 63, appendix A[e], or ASTM Method D6348-03[d e]	(d) Results of this test consist of the average of the three 1-hour or longer runs.

[a]Also, you may petition the Administrator for approval to use alternative methods for portable analyzer.

[b]You may use ASME PTC 19.10-1981, Flue and Exhaust Gas Analyses, for measuring the O_2 content of the exhaust gas as an alternative to EPA Method 3B. AMSE PTC 19.10-1981 incorporated by reference, see 40 CFR 60.17

[c]You may use EPA Method 18 of 40 CFR part 60, appendix A-6, provided that you conduct an adequate pre-survey test prior to the emissions test, such as the one described in OTM 11 on EPA's Web site (*http://www.epa.gov/ttn/emc/prelim/otm11.pdf*).

[d]Incorporated by reference; see 40 CFR 60.17.

[e]You must meet the requirements in §60.4245(d).

[81 FR 59809, Aug. 30, 2016]

Table 3 to Subpart JJJJ of Part 60—Applicability of General Provisions to Subpart JJJJ

[As stated in §60.4246, you must comply with the following applicable General Provisions]

General provisions citation	Subject of citation	Applies to subpart	Explanation
§60.1	General applicability of the General Provisions	Yes	

§60.2	Definitions	Yes	Additional terms defined in §60.4248.
§60.3	Units and abbreviations	Yes	
§60.4	Address	Yes	
§60.5	Determination of construction or modification	Yes	
§60.6	Review of plans	Yes	
§60.7	Notification and Recordkeeping	Yes	Except that §60.7 only applies as specified in §60.4245.
§60.8	Performance tests	Yes	Except that §60.8 only applies to owners and operators who are subject to performance testing in subpart JJJJ.
§60.9	Availability of information	Yes	
§60.10	State Authority	Yes	
§60.11	Compliance with standards and maintenance requirements	Yes	Requirements are specified in subpart JJJJ.
§60.12	Circumvention	Yes	
§60.13	Monitoring requirements	No	
§60.14	Modification	Yes	
§60.15	Reconstruction	Yes	
§60.16	Priority list	Yes	
§60.17	Incorporations by reference	Yes	
§60.18	General control device requirements	No	
§60.19	General notification and reporting requirements	Yes	

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Table 4 to Subpart JJJJ of Part 60—Applicability of Mobile Source Provisions for Manufacturers Participating in the Voluntary Certification Program and Certifying Stationary SI ICE to Emission Standards in Table 1 of Subpart JJJJ

Does not apply. Not a mobile source.

APPENDIX C – FACILITY DRAFT COMMENTS

The following comments were received from the facility on November 4, 2019:

Facility Comment: In response to your question in Table 2.1, Natural Gas-Fired MAU stack parameters – response should be footnote 6.

DEQ Response: Agree. Change is made.

APPENDIX D – PROCESSING FEE

PTC Processing Fee Calculation Worksheet

Instructions:
Fill in the following information and answer the following questions with a Y or N. Enter the emissions increases and decreases for each pollutant in the table.

Company:
Address:
City:
State:
Zip Code:
Facility Contact:
Title:
AIRS No.:

N Does this facility qualify for a general permit (i.e. concrete batch plant, hot-mix asphalt plant)? Y/N

Y Did this permit require engineering analysis? Y/N

N Is this a PSD permit Y/N (IDAPA 58.01.01.205.04)

Emissions Inventory			
Pollutant	Annual Emissions Increase (T/yr)	Annual Emissions Reduction (T/yr)	Annual Emissions Change (T/yr)
NO_x	0.34	0	0.3
SO_2	0.00	0	0.0
CO	0.40	0	0.4
PM10	0.02	0	0.0
VOC	0.02	0	0.0
Total:	0.00	0	**0.8**
Fee Due	**$ 1,000.00**		

Comments: